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## EDITORIALS†

### THE SEASON'S GREETINGS

The eve of a biennial legislative session in California, with potentialities of untoward public health legislation, makes good wishes for Christmas and New Year days particularly appropriate. If the year 1936, now coming to a close, meant to many members of the Association another twelve months during which professional services again and again were rendered on reimbursement schedules far too meager for the needs of professional life, it may still be consoling, small though the comfort be, that conditions might have been worse. With the national election now a thing of the past, it looks as if the country will settle down to sober, earnest acceptance and trial of some of the newer social endeavors, emphasized so much in recent years, and which, in many instances, are associated more or less with medical practice. Therefore, at the end of the current year and the beginning of the year to come, it may be permissible to breathe the hope of better days and better things.

No business or profession comes into more intimate contact with the trials and tribulations of citizens than medicine. Of necessity, physicians must partake of the joys and sorrows of their patients and, in good degree, prosper or suffer with them. However, in the United States—and certainly in California—there are many things for which to be grateful and hopeful.

In the spirit, then, of mutual helpfulness, the Official Journal, in accordance with past custom, extends again to their fellow physicians, in the name of all members, the Greetings of the Season. May 1937 measure up most fully to our respective needs, good hopes, and desires! Greetings!

### HOSPITALIZATION PLANS IN CALIFORNIA

**The Physician-Patient Relationship in Medical Practice.**—In contrast to other modern-day life, the practice of medicine up to the present time has had as one of its basic characteristics the element of individualization; meaning thereby that the person who is sick or injured does not seek any or a number of physicians, but nearly always a certain physician to take charge of his case; the service in each instance again empha-

† Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Editorial Comment column, which follows.

sizing personal, namely, individual medical supervision. The average American citizen, and his family also, when illness or injury come, do not want a mass of advice from a multitude of doctors of medicine, or from a doctor chosen haphazard or at random, but seek, by preference, the individual opinion and service of the one physician whom he and his family and friends have selected, and in whom they have confidence. This interesting patient-to-physician relationship is not a matter of mere custom or habit, but an expression of basic feeling and psychology in evidence among sick and injured persons, from one end of the country to the other. It is typical of American thought and living. \* \* \*

**Relationship Important in Hospitalization and Medical Service Plans.**—Because this physician-and-patient relationship is such a spontaneous and fundamental phenomenon, it must be taken into serious consideration in all plans having to do with medical service in home or hospital. Especially, must this basic correlation never be lost sight of in plans designed to bring greater or more adequate service to portions of the lay population; many of whose members, under modern-day conditions, must face heavy economic and other problems in their efforts to maintain intact the protection and advancement of their family groups. \* \* \*

**Seeming Inability of Mechanization Theorists to Understand.**—Theorists and propagandists, who, looking through glasses of their own construction, see only certain phases of illness and the economic problems connected therewith, only too often fail to recognize the important significance of the individualization factor in successful medical practice; propounding their paper theories with self-assurance and satisfaction, and giving the impression at times that they imagine themselves to be modern-day oracles on these matters, when, as a matter of fact, they are not infrequently little more than academic idealologists. In this oracular atmosphere, created by themselves, they do not hesitate to outline and dogmatize on what physicians must do in the present-day world; how they must change their methods of practice, and along what lines their course must be laid for the days to come! Much of the medical service propagandism, as exploited by certain of these lay theorists, comprehends a regimentation and mechanization of medical practice, equally obnoxious to the American patient and the American physician.

The one-sided thinking of some of these visionaries is shown not only in their seeming incapacity to understand how plans leading to mechanization in healing-art care will necessarily produce a lower type of medical service, but also in their overemphasis and exaggerations concerning the vast number of lay fellows in our midst who are supposedly suffering permanent injury from lack of a more universal method of placing physicians on call to all classes of citizens. These thoughts are here presented, as more or less pertinent to what will appear below concerning hospitalization plans in California.

**Hospitalization Organizations Now in Operation in California.**—At the present time, The Intercoast Hospital Association is giving hospitalization service in the Sacramento Valley and adjacent territory, and in Alameda County, members of the Alameda County Medical Association have also sponsored an hospitalization organization. Each corporation, operating as a nonprofit insurance organization, has been obliged to set aside \$25,000 as a protection reserve to clients, and to fulfill other conditions designed to protect policyholders, as laid down by the State's Insurance Commissioner. In Los Angeles and adjacent counties, plans are also in formulation to bring into being a hospitalization system, in this instance, however, to operate as a nonprofit corporation under Assembly Bill 246\*; and unless legal technicalities prevent, this Southern California plan may be in operation before the close of the year. Under Assembly Bill 246 for nonprofit hospitalization service, the \$25,000 requirement is not obligatory. In Southern California more than twenty-five hospitals have signified their acceptance of the plan proposed.

The above plans comprehend hospitalization service on a periodic prepayment basis, the premiums to be paid being such as are within the means of citizens in moderate circumstances. It is to be hoped that the three groups above noted will be successful in their work, and that their areas of service will be extended to practically all portions of the State, where local communities do not themselves promote similar organizations. \* \* \*

**"High Costs of Medical Care" are the "High Costs of Hospitalization."**—Many physicians hold that the economic shocks of serious illness and injury, concerning which some of the compulsory health advocates prate so much, have to do, not so much with the fees of medical men and women, as with the heavy expenses incident to hospital care. Therefore, all plans which on a periodic prepayment basis make it possible for citizens of moderate income to protect themselves against this contingency, just as they protect themselves through fire insurance policies, automobile insurance, and health and life policies, would seem to be worthy of earnest consideration and support. Of course, certain matters having to do with clinical laboratory and x-ray service, which today are everywhere accepted and demanded as concomitants of hospitalization, may need satisfactory adjustment; but the difficulties in regard thereto should not be insurmountable.†

\* Assembly Bill 246 was discussed in previous issues: Editorial—Assembly Bill 246: For Nonprofit Hospital Service, Vol. 43, No. 2, August, 1935, page 107.

American Medical Association and Health Insurance Principle, Vol. 43, No. 2, August, 1935, page 175. (Special article in Miscellaneous department.)

Editorial—Assembly Bill 246—Chapter 386: The Nonprofit Hospital Service Bill, Vol. 43, No. 4, October, 1935, page 249.

† As the copy for the December issue is being prepared for the press, an interesting news release is received from the Julius Rosenwald Foundation of Chicago, which announces a gift of one hundred thousand dollars (\$100,000) to the American Hospital Association for the study and development of voluntary hospital insurance. The item is printed in this issue on page 519.



**Action of the California Medical Association: Cooperation Should Be Given.**—In this issue of the Official Journal appear\* the minutes of the meeting of the California Medical Association Council held in San Francisco on November 7 last, and reference is made therein to hospitalization plans then discussed. Members of the Association are urged to read the same and to maintain an active interest in the efforts to promote satisfactory hospitalization plans in California, and to give whole-hearted cooperation to approved groups. It will save much discussion and worry, in January of next year when the California Legislature again meets, if successful hospitalization plans can be pointed to as actually being in operation over most of the State.

#### **COUNCILOR DISTRICT MEDICAL SOCIETIES: SHALL CALIFORNIA ORGANIZE THEM?**

**The American Medical Association Plan of Thirty Years Ago.**—When, more than thirty years ago, the New England town-meeting form of organization of the American Medical Association was changed into its present order, there came into being for organized medicine one strong national organization, one and only one constituent state association for each commonwealth, and one and only one component society for each county in the United States. Many have been the benefits which have accrued as a result of that reorganization; because, for the first time, the American Medical Association found itself able to amass property and reserve funds (largely through the net income derived from its Journal), making possible, for instance, research councils and departments to aid in the promotion of public health and medical service plans. In a similar manner, the state medical associations took on new leases on life and also, for the first time, began to fulfill analogous functions in their respective territories. For instance, in California, so recently as the year 1900, the State Association—then known under the name "Medical Society of the State of California"—was largely a northern California district organization, the Southern California Medical Society being almost as large and influential in the region south of the Tehachapi. In a number of the larger counties, not one, but two or more additional societies vied with the county organizations in bids for support.

\* \* \*

**Good Results of the Reorganization.**—The reorganization in 1902 changed all that in California, because, as each county society grew in numbers and influence, so also did the State Association add to its growth and power to serve.

Because of the beneficent results which came about in the 1900-1903 reorganization plans, the medical profession of the United States is today

committed to the one strong national organization, one strong state association, and one strong component county society plan; and it may be taken for granted that the American Medical Association is not apt to change its constitution and by-laws to permit a return of multiple organizations, with all their attendant looseness and deficiencies, such as existed in the prereorganization years.

\* \* \*

**"Councilor District Societies."**—However, there is nothing in the organization plan of the American Medical Association and its constituent state associations that forbids the organization of "councilor district societies," and in a number of states such district organizations have long received active support and have done much good work.

By a "councilor district society" is meant the organization by the counties comprising a councilor district, of a society with an independent identity, but acting in harmony with the state association, as a recognized part of it. A district society may hold annual or semi-annual sessions at places within its territory; at times by it selected. It has its own officers and its sessions last one or two days. Ordinarily, the business meeting is quite brief, and limited to the election and reports of officers and committees. The programs are modeled, in a general way, after those of the state organization, and may stress didactic or clinical expositions, according to conditions. In California two organizations of practically a district type, the Southern California Medical Society and the California Northern District Medical Society (listed on advertising page 6), for years have been carrying on most commendable work.

\* \* \*

#### **How a Councilor District Society Can Serve.**

Our purpose in writing these lines is to call attention to the following facts: that California is one of the largest states in the Union; that, on that account it is difficult for many members of the California Medical Association to leave their work to attend its annual sessions; that district associations would fulfill a similar function for such members and would promote county society membership and activities in every such district; that such district societies, in a one- or two-day session, could be supplied with clinical demonstrations from their own and extra-district localities, thus aiding the postgraduate work of the State Association; that every district society could be made to be of great value in promoting good fellowship and understanding between the members of the county societies included; and that the community problems of each district territory, such as county hospital and other conditions, could be better solved for such a territorial district if the adjacent counties had opportunities, through a district society, to bring their physicians into more intimate professional and fraternal contacts, and the exchange of views and adoption of policies.

\* See Council minutes, page 502, items 6 and 12.

### Should Not Councilor District Societies Be Promoted in California?

—As a matter of fact, if properly organized along simple lines, with skeleton by-laws approved by the California Medical Association Council, and working in full harmony with the State Association and its component societies, a councilor district organization could be made to be one more additional—and with good leadership, a powerful—factor in keeping before the lay public the objects scientific and organized medicine believe in and hope to attain. We suggest that county societies consider the implications involved in a district society for their respective councilor district. Officers of the Association will be glad to give advisory and other aid. If each of the nine councilor districts had such an active organization, the influence and capacity for greater service by the California Medical Association and its thirty-nine component county societies would be largely increased.

### STATE ASSOCIATION DUES

**Action of the 1936 House of Delegates.**—At the annual session of the California Medical Association, held in Coronado on May 25-28, 1936, the House of Delegates approved the recommendation of the Reference Committee that, for the year 1937, the dues of the State Association be increased by \$5. The vote by the House of Delegates on the Reference Committee's recommendation was unanimous, not a single one of the more than one hundred delegates, representing the thirty-nine component county societies, asking any questions or making any protest. This unanimity was not to be interpreted as an expression of indifference on the part of the delegates concerning the hardship that might be caused by the five-dollar increase in State Association dues, but rather as a recognition by the seated members concerning the issues confronting the medical profession at the present time—issues which are so vital to the interests of each member that, even though it might hurt to give, there was no other logical course to follow, if the collective and individual welfare of members of the Association were to be adequately safeguarded during the coming legislative year.

\* \* \*

**Reasons for the Increase.**—Owing to the heavy outlays incurred as a result of the mandatory health insurance survey authorized by previous Houses of Delegates in regular and special sessions, the reserves in the Association treasury have been greatly depleted, and a reestablishment of an adequate treasury balance seemed necessary.

With a legislative session in the foreground for the year 1937, it may be taken for granted that attempts will again be made to launch health insurance and open-county-hospital legislation upon the citizens of California. As a matter of fact, copies of certain proposed bills drafted by lay and unknown sources have already been placed in circulation and propagandized.

It is not possible to forecast in advance how much effort and time may be necessary to keep in touch with the progress of such proposed legislation, as it takes its course through assembly and senate committees and on the floors of the chambers, but that it will need constant surveillance is self-understandable. Also, that the work is so onerous and time-consuming, that members of the Committee on Legislation and Public Policy cannot be expected to neglect the personal practice of their profession to render gratuitously, or otherwise, the full service which will be necessary. The costs of the clerical and executive personnel which the Association is called upon to engage, to look after work of this kind, are not inconsiderable items.

\* \* \*

**Interests at Stake.**—It is true that one should rebel against expenses of this type, brought into existence through the desire to safeguard public health and medical practice standards, but academic discussion would only lead to disaster; and make possible, in all probability, the enactment of poorly matured legislation that might not only mean a monetary loss to every California Medical Association member of many, many times the five-dollar increase in dues during the coming year, but which in future years might bring about radical and demoralizing changes in medical practice in California; with financial and professional retrogressions, at this time difficult to even visualize.

\* \* \*

**Increase for One Year Only.**—Matters such as the above, as well as other responsibilities of the Association, explain the unanimous approval by the Coronado annual session delegates of the five-dollar increase in dues for 1937 which, it is hoped, will not be necessary in the subsequent years; and which could only be continued with the sanction of the delegates elected by the component county societies. So that, in the last analysis as in the past, the component societies, through the delegates which they elect, will have full power in the premises, so far as State Association dues in future years are concerned.

**Other State Association and Component County Society News.**—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 502.

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Our chief enemies at present are heart disease, cancer, pneumonia, tuberculosis, and syphilis. If the full facts are known, as Doctor Osler said, syphilis would probably come first. Syphilis is the biggest killing disease in the community. It and tuberculosis are undoubtedly the greatest present contributors to the total mortality prior to the approach of old age. By the removal of tuberculosis and syphilis, most of the preventable deaths from the age of 15 to 65 would be avoided.—Sir Arthur Newsholme, M.D.

## EDITORIAL COMMENT<sup>†</sup>

### CAPILLARY RESISTANCE

Two methods have been applied in the study of capillary resistance. In the earlier method introduced by Rumpel and Leede, a constricting band is applied to the arm for a period of time, and the occurrence of petechiae in the arm distal to the band (particularly in the cubital fossa) is noted. Göthlin<sup>1</sup> recently applied this method in a controlled manner in studying the occurrence of latent scurvy in school children in Sweden. The method as applied by Göthlin is a reliable index of capillary resistance, but is cumbersome and time-consuming.

In the second method, originated by Hecht,<sup>2</sup> a negative pressure is used applied to the skin through a suction-cup combined with a mercury manometer and a vacuum pump. Hecht used the test chiefly in exanthema. Wiemer<sup>3</sup> applied the method extensively, noting the variability of capillary strength in different skin areas and in various pathological states. He considered that different influences might reduce the capillary strength by injuring the capillary wall. Among these were certain poisons, bacterial toxins, metabolic products and, of course, vitamin C deficiency. Further certain physiological states, as menstruation and endocrine disturbances such as exophthalmic goitre, were thought to reduce the capillary strength by their influence upon capillary tonus.

Recently Dalldorf<sup>4</sup> modified an instrument devised by da Silva-Mello,<sup>5</sup> in which a spring manometer was substituted for a mercury instrument. It is this instrument which we have used. The test is simple. A surface of skin is thinly smeared with vaselin, the cup is applied and the desired suction made. This negative pressure is maintained for one minute by closing a valve leading from the pump. Our application of the test has been chiefly in rheumatic fever and rheumatoid arthritis, diseases in which we feel a factor of vitamin C deficiency may be concerned.<sup>6</sup> In

these diseases we find the capillary strength reduced. In most instances the capillary strength has risen in cases maintained on a high vitamin C intake. This rise has often required several months, indicating a delayed restitution of the capillary wall. The capillary resistance is expressed in terms of the lowest negative pressure (centimeter of mercury), maintained for one minute, which will produce macroscopic petechiae. Although the test may be an index of latent scurvy as proposed by Dalldorf, there are certain limitations of the method. As he has noted, there are unexplained individual variations encountered, and undoubtedly other factors which impair capillary walls may reduce the capillary resistance. It may be that in some diseases vitamin C deficiency may be a contributory and not the sole factor in reducing the capillary resistance. However, an estimate of the strength of the capillary wall is of potential service in the study of disease. This is particularly true if the capillary strength proves to parallel permeability. Dalldorf has set the "normal" level of capillary resistance at 35 centimeters of mercury in testing the upper arm. We feel that the test should not be interpreted too narrowly. Positive readings below 20 centimeters of mercury we consider evidence of reduced capillary strength. In some instances such reduction appears to have no significance. Our tests have been done on the volar surface of the forearm in some cases, and the upper arm in others. The upper arm readings are almost uniformly somewhat lower. It would seem that a modification of the test might be of value in detection of latent edema.

University of California Hospital.

JAMES F. RINEHART,  
San Francisco.

### VITAL CAPACITY DETERMINATION: WITH PARTICULAR REFERENCE TO ITS VALUE IN HEART DISEASE

Borelli first measured the vital capacity of the lungs in 1679. It was studied intermittently after that until a truly scientific study of results on 3,000 people was published by Hutchinson in 1846.<sup>1</sup> His paper marked the beginning of the present epoch in the history of the test. During the World War an easy method for the estimation of physical fitness of large numbers of men was needed and vital capacity was frequently used as an indicator. Dreyer<sup>2</sup> reported this work and pointed out that it was a decisive factor in admission to the British Flying Service. After the war the center of interest shifted to America, due largely to the work of Peabody and Wentworth<sup>3</sup> in Boston. Since that time the test has been the subject of extravagant claims and severe criticism, but certain definite values have allowed it to survive both extremes of thought.

1. Hutchinson, J.: *Medico-Chirurgical Transactions*, 29:137, 1846.
2. Dreyer, G.: *Lancet*, 2:227, 1919.
3. Peabody, F. W., and Wentworth, J. A.: *Arch. Int. Med.*, 20:443, 1917.

<sup>†</sup> This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

1. Göthlin, G. F.: A Method of Establishing the Vitamin Standard and Requirements of Physically Healthy Individuals by Testing the Strength of Their Cutaneous Capillaries; *Skandinav. Arch. f. Physiol.*, 61:225 (May), 1930.

2. Hecht, A. F.: Experimentell-klinische Untersuchungen über Hautblutungen im Kindersalter, *Jahrb. f. Kinderh.*, 65:113, 1907.

3. Wiemer, P.: Das Endothelsymptom, *Ztschr. f. d. ges. expr. Med.*, 78:229, 1931.

4. Dalldorf, G.: A Sensitive Test for Subclinical Scurvy, *Am. J. Dis. Child.*, 46:794, 1933.

5. da Silva-Mello, A.: *Capillar-Resistometer*, München. med. Wchnschr., 41:1717 (Oct. 11), 1929.

6. Rinehart, J. F., and Mettler, S. R.: The Heart Valves and Muscle in Experimental Scurvy with Superimposed Infection, *Am. J. Path.*, 10:61 (Jan.), 1934.

—Rinehart, J. F., Connor, C. L., Mettler, S. R.: Further Observations on Pathological Similarities Between Experimental Scurvy Combined with Infection, and Rheumatic Fever, *J. Exper. Med.*, 59:97 (Jan.), 1934.

—Rinehart, J. F.: Studies Relating Vitamin C Deficiency to Rheumatic Fever and Rheumatoid Arthritis; Experimental, Clinical, and General Considerations. I. Rheumatic Fever, *Ann. Int. Med.*, 9:586 (Nov.), 1935.

—Studies Relating Vitamin C Deficiency to Rheumatic Fever and Rheumatoid Arthritis; Experimental, Clinical, and General Considerations. II. Rheumatoid (Atrophic) Arthritis, *Ann. Int. Med.*, 9:671 (Dec.), 1935.



## FACTORS THAT INFLUENCE THE VITAL CAPACITY

These are, of course, important in judging the value of the test.

1. *Age*.—Children less than adults; definite tendency to drop after the age of 50 to 60.

2. *Sex*.—Slight difference in early years, and a definite difference after the age of 15. Men are higher than women.

3. *Physical Fitness*.—Athletes may be 100 per cent more than their theoretical normal. Occupations have an effect, and laborers have much greater vital capacities than office workers.

4. *Body Measurements*.—Weight, height, stem length, chest circumference, chest capacity, and body surface all affect the vital capacity. The most satisfactory standard tables are calculated from body surface.

5. *Race and Nationality*.—Chinese and Filipinos lower than Westerners.

6. *Posture*.—Results are about 5 per cent lower with the patient reclining than when standing.

7. *Pulse*.—Increased rate causes a slight decrease, more marked in definite heart disease.

8. *Muscular Fatigue*.—Causes slight decrease.

9. *Hyperthyroidism*.—Decrease has been reported, more marked with cardiac involvement.

10. *Increased Abdominal Pressure*.—Pregnancy has only an occasional slight effect.

11. *Deformities of the Thorax*.—Fixation or encroachment upon the intrathoracic space has a definite effect.

12. *Pleural and Pulmonary Conditions*.—Pleurisy, pneumothorax, emphysema, asthma, bronchitis, lung abscess, pneumonia, new growths and tuberculosis all definitely lower the vital capacity.

13. *Cardiac Conditions*.—These have a marked effect, as discussed below.

14. *Extraneous Factors*.—Psychic factor important, as concentration and utmost effort are necessary. Temperature, atmospheric pressure, and vapor pressure all have slight effect.

## CARDIAC CONDITIONS

Vital capacity determinations are of particular help in following the progress of cardiac patients. Reduction closely follows the clinical condition, and occurs before râles can be heard at the lung bases in congestive failure.

Repeated determinations are of the greatest value and show (1) impending failure, (2) effect of treatment, (3) point of maximum response to treatment, and (4) possible indications of the level of cardiac tolerance. There is a marked correlation with dyspnea. In "effort syndrome" the vital capacity is usually normal.

## METHOD

Tables of normal standards calculated from body surface are considered the most reliable, except in extremes of emaciation or obesity. The calculation is as follows: Body surface (sq. M.)  $\times$  2,500 = estimated vital capacity in cubic centimeters for men. Body surface (sq. M.)  $\times$  2,000 = estimated vital capacity for women. The body surface can be easily determined from the pa-

tient's height and weight, using charts prepared by Boothby and Sandiford.<sup>4</sup>

The test is performed with the use of a spirometer which measures the amount of exhaled air. The patient is always in the same position (usually standing), all clothing about the thorax is loosened, and three attempts are made, each after the deepest possible inspiration. The highest reading is recorded.

Most of the points in this article are adequately discussed in a monograph by Myers<sup>5</sup> which also contains a complete bibliography.

384 Post Street.

ROBERTO F. ESCAMILLA,  
San Francisco.

4. Boothby, W. M., and Sandiford, E. B.: Boston M. and S. J., 185:337, 1921.

5. Myers, J. A.: *Vital Capacity of the Lungs*, Williams and Wilkins Co., Baltimore, 1925.

*Report of British Medical Association on Immunization*.—More than a year ago, the British Medical Association appointed a committee, consisting mainly of health officers and pathologists, to prepare a scheme for informing the public regarding the protection afforded by the various methods now available of immunization against diseases.

*Diphtheria*.—The committee states that diphtheria is not less prevalent than formerly, but is less fatal. Isolation and sanitary measures have failed to control it, and it accounts for three thousand deaths annually. Active immunization is confidently advocated. In children under the age of eight years the preliminary Schick test may be omitted, since the great majority may be assumed to be susceptible, but as a test of success should be performed from one to three months after the immunizing course. For children any of the preparations known as toxoid, toxoid-antitoxin mixture, toxoid-antitoxin floccules and alum toxoid may be safely used, but for adults preference is expressed for toxoid-antitoxin mixture or floccules. On the average, 95 per cent of immunized persons are still Schick-negative from three to five years after immunization.

*Scarlet Fever*.—Scarlet fever still presents difficulties in preventive medicine. The death rate has fallen remarkably, although the incidence has altered little. The Dick test is held to be very reliable. Immunization should at present be reserved for hospital staffs and children in a residential school where an outbreak has occurred. Two methods of immunization are used: (1) In England most workers use weekly or fortnightly injections of 500, 1,000, 5,000, 10,000, and 20,000 skin test doses. (2) In recent years the tendency has been to use a higher dose. In the United States the Dicks and others give doses running up to 80,000 or 100,000. By slow graduation of dose, reactions may be almost entirely avoided. Probably from 2 to 10 per cent of the immunized revert to the Dick-positive state within a year.

*Measles*.—Passive immunity to measles can be produced by the use of convalescent serum or blood and by adult serum or blood. It may be used for postponing the danger of infection to a more opportune time or for mitigating the attack. Convalescent serum is the material of choice and should be given in the first five days after exposure for complete protection. Administration between the fifth and ninth days, or half dosage during the first five days, is used for modifying an attack.

*Typhoid*.—The work of Wright and Leishman during the war resulted in the production of a typhoid vaccine widely and successfully used. In the years that have followed, modifications have been introduced into the technique of manufacture. Saline suspensions have replaced broth emulsions. Work in the department of pathology at the Army Medical College has resulted in the production of a vaccine containing 1,000 million B. typhosus, 750 million each of B. paratyphosus A and B. paratyphosus B in 1 cubic centimeter of 0.5 per cent phenolated saline solution. Adults are given 0.5 cubic centimeters after ten days by 1 cubic centimeter.



## ORIGINAL ARTICLES

## PRACTICA MEDICI MODERNI\*

By CHAUNCEY D. LEAKE, Ph.D.  
San Francisco

WHEN Dr. Fletcher Taylor, the genial chairman of the 1936 Section of General Medicine of the California Medical Association, persuaded me to discuss with the Section some non-technical aspects of modern medical practice, he failed to tell me that he was relinquishing his traditional prerogative of delivering a chairman's address in order that I might talk. To admit surprise is to admit only the mildest of my feelings on discovering this fact when the program of the meeting appeared. Here was a humbling example of that very modesty, trustfulness, and friendliness which Doctor Taylor had suggested might form an appropriate theme of part of my remarks. I am excitedly conscious and stammeringly embarrassed by the responsibility placed upon me. But there is no greater obligation imposed on our conduct than for us to try to justify the confidence others may place in us. However vagatonic, therefore, my trial may be, I hope it may have your sympathetic indulgence.

## FOUR IMPORTANT FACTORS IN MEDICAL PRACTICE

In looking broadly on the practice of modern physicians through appreciative and academic eyes—slightly astigmatic, I fear—I have been struck by four formidable features which I wish to offer for your consideration; three of them as old as medicine, the fourth very new. First, there is the ancient problem of holding together for effective teamwork that spirited and often poorly harnessed pair, the scientific and the artistic phases of practice; second, there is the equally ancient problem of developing medical etiquette in accordance with sound ethical principles, in which I wish to point out that professional relations are most satisfactorily promoted on the basis of gentlemanly friendship; third, we must pay our respects to the revival of another ancient medical problem regarding intense specialization; and, fourth, we should consider the consequences of a wholly new medical problem associated with the rise of sound and applicable methods of preventive medicine, in regard to which I want to suggest a way by which a practical incentive may be provided for its effective practice. Here is enough to chew over for a long time, and it is tough meat. But by pulling in our belts, we may strengthen our stomachs to digest it. If we get a bellyache, Doctor Taylor has brought it upon us.

## ART IS LONG

Modern medical practice is sharpening the focus on the traditional but not always convivial union

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of science and art in medicine. The art of medicine has predominated until recently. But now the scientific part of the team has almost run away with the wagon, and it is time to pull in the reins and get the team working together again. The scientific part of medicine consists of the factual data accumulated by observation, experience, and experiment regarding the cause, recognition, natural course, treatment, possible outcome, and prevention of disease. The artistic part of practice lies in the application of this knowledge to the special problem offered by an individual patient in the effort to bring into or preserve that patient in the ideal state of health conceived for him by the physician. About the factual knowledge there is no argument. It is observable or reproducible. The data may be explained in various ways, but the facts remain the same, irrespective of anyone's opinion. But the artistic effort is entirely individual, and although all physicians are artists, no two physicians will solve the same artistic problem in the same way any more than two musicians will play the same composition in the same way, or two painters paint the same scene identically. Styles may be similar. They are conditioned by the fashions and vogues of the moment. But the essence of art is judgment and choice. The soundness and effectiveness of this procedure for a desired end is acquired only by long experience. Most of the science of medicine may be learned in the four years of medical school, but the rest of a physician's life may still find him deficient in the art. The first aphorism of a leader of a great school of medicine is to the effect that art is long and life is short.

We may find an easy illustration of the problem in connection with drugs—that is, chemicals used for the diagnosis, prevention, cure, or alleviation of the symptoms of disease. The actions of these chemicals may be determined with a considerable degree of accuracy, now that we have sound bio-assay methods as developed by Trevan and Burn. About these demonstrable actions there is no argument. They remain factual in spite of how they may be explained, or in spite of what anyone may think of them. But to apply these actions to a specific problem in connection with an individual patient—this calls for judgment and artistic skill of a high order! Judgment in any artistic problem is a matter of discriminating choice. This can only be developed by long experience. To use drugs wisely in medicine demands such judgment. The primary principle, of course, is to be sure that the drug hazard does not outweigh the disease hazard, no matter for what purpose the drug may be used. *Primum non nocere* remains now, as in centuries past, a cardinal principle of medical practice.

My plea to you is to remember that the factual knowledge may be obtained from disinterested professional sources, such as universities, reputable texts, journals and monographs, but not from detail men or specious advertising, either of commercial houses or clinics. In failing to use this discriminating judgment, physicians have shown

themselves to be as gullible as any other class of humanity.

My appeal to you is to cultivate your great art in every way. In the attempt to achieve a desired result, three steps are important. First, there must be a clear recognition of the desired end, a clearly visioned *ideal* of what is wanted; second, the *knowledge* of how to work the refractory material of the sick body to attain this end; and third, the *skill* or technique to carry out this work.

No sculptor, not even Rodin, is a greater artist than the plastic surgeon who carves a semblance of human expression from the wreckage of a shell-torn face; no musician, not even Beethoven, is a greater artist than the physician who develops a harmony of adjustment from the dissonances of a psychopathic personality; no painter not even a Romney, whose pink-cheeked maidens brighten every big gallery, is a greater artist than the physician who can put the bloom of good health in the cheeks of his patients; no dramatist or actor is a greater artist than the physician who daily plays his rôle in the everlasting and thrilling drama of the lives and deaths of his patients.

My plea, then, is to study and practice your art. Whatever scientific background you may have is merely to make your art more effective. Study art in all its many forms. All good physicians are good artists. It is not merely a coincidence that so many physicians are painters, musicians, novelists, and poets.

#### MEDICAL ETHICS AND ETIQUETTE

These considerations have important moral implications. Osler emphasized that the Hippocratic association of *Philotechnia* with *Philanthropia*—love of the art and love of humanity—is an ancient recognition of what is a fine idealism of more than merely academic interest. Love of the art promotes love of humanity, and vice versa, and in either case science also. Beauty, goodness, and truth may be for us, as for the Greeks, an idealistic and intellectual trinity of great significance; as George Sarton is showing in his humanistic studies on the history of science.

It is in the matter of personal conduct that the artistic qualities of the good physician may be most effectively expressed. Personal conduct is not easily based on rules, although these help to set a standard of good taste or conventional etiquette. Most of what is called "medical ethics" is concerned with merely the etiquette of professional conduct. The current rules of "medical ethics," derived from Thomas Percival's code of 1804, bear a striking similarity to trade-union rules, for their chief purpose seems to be the enhancement of the prestige and success of the profession and its members. This is a form of hedonism; that is, it is based on the motive of personal pleasure. It is quite different in its purpose from the Hippocratic association of *Philotechnia* and *Philanthropia*, which is an expression of "idealism," that is, conduct motivated by a desire to promote the welfare of society as a whole. One of the chief difficulties in the personal-conduct problem of modern medicine is the clash between the idealistic

ethics it professes and the hedonistic ethics which it practices. Years ago I tried to point out the factors responsible for the situation;<sup>1</sup> but, naturally, the profession paid no attention to my sophomore effort. Now, with society pressing the issue, it is becoming more acute; but I fail to notice that the profession is any more conscious of the fundamental problems of ethics than it ever was. It might indeed be helpful to get some advice from scholars who know something about ethics, like men of the caliber of Professor Warner Fite, for example. There are only a few of them, for only a few of our universities still think ethics worthy of prominence in the curriculum. The recent pronouncement of the official agency of the American Medical Association on this subject<sup>2</sup> is what one might expect. I doubt if more than a few dozen members of the Association read or studied it. To any with intelligence who did so, its inconsistencies must have been apparent, even though it made a great show of erudition with copious (but prejudicially selected) documentation. Medical ethics should really be a simple matter. In its relations with society, the profession of medicine, as it exists now, must follow a truly idealistic ethics, or society will destroy it.

In the individual relations between its members, medicine should promote the ethics of friendship. Friendship implies all that is noble without being sentimental. From good friends one is certain to derive three great things: tolerance, comfort, and inspiration. Even to become friends, let alone remain so, the cultivation of tolerance for each other is the first essential. Tolerance promotes understanding and sympathy. Tolerance leads us to appreciate that we are all made of the same common clay, a reflection that comforts the young and promotes patience in the old. Tolerance in the practice of medicine is essential, since the practice of medicine is an art, and there is no uniformity of opinion on anything artistic. Tolerance among friends does not imply acquiescence in anything falling short of an ideal; quite the contrary! Tolerance makes possible the recognition of the mote in one's own eye, and thus makes one more willing to forgive the beam in one's neighbor's. Tolerance among friends is reciprocal, and promotes comfort and inspiration.

Friendship has little meaning unless it provides comfort and inspiration—comfort in the daily defeats we all suffer, and inspiration for doing our best in the daily tasks we all must face. From the comfort one may feel in a sympathetic friend usually arises a mutual feeling of trust and confidence that becomes the strongest incentive to its own justification. The greatest moral force one may feel is the necessity of justifying the faith placed in one by one's friends.

In the daily burdens of medical practice, professional friendship may be the greatest incentive to the best in medical ethics. Then, in a truly idealistic manner, personal advantage of any sort becomes willingly sacrificed for the welfare of society as a whole. Genuine friendship in the profession eliminates any necessity for the formula-

tion of rules of etiquette. Mutual respect among friends, built by tolerance, comfort, and inspiration, promotes the qualities of gentlemanliness. We all know what gentlemanly conduct means. There is no need to establish rules and definitions by which it may be judged. Perhaps that is why Dr. St. John Roosa proposed, during the squabble over "medical ethics" in the New York State Medical Society in the eighties, that the only rule need be that a member conduct himself as a gentleman. Friendship makes this easy.

#### SPECIALISM

In modern medical practice appear two difficult problems—specialism and preventive medicine. The former is an ancient relic of the ancient tendency of vain men to furnish themselves with false fronts. It is inherent in the vanity of human character, and from Babylonian times has never been able to divorce itself, in the eyes of the intelligent public at least, from a taint of quackery and hypocrisy. Specialism is, unfortunately, too often associated with pride, arrogance, and high fees. Notwithstanding national boards of certification, international societies, and other dignified protestations of limited (and therefore presumably superior) practice, the taint continues. It will continue until the general health adviser, the general practitioner—the friend, counselor and confidant of the family—is returned to that dignity of status where the specialist's fee will be no more than his. Can this be accomplished? Easily. Let the general practitioner take preventive medicine as his specialty—and give him a financial incentive to practice it. Let the specialist keep his financial interest in people's sickness, but let the general practitioner derive his income from keeping his patients well—on a retainer-fee basis. The public has always had a great interest in the presumed Chinese method of practicing medicine.

#### PREVENTIVE MEDICINE: THE GENERAL PRACTITIONER'S SPECIALTY

The avowed ideal of the profession of medicine is the prevention of disease. From the first year of his medical training, this is the goal toward which all the efforts of the future physician are supposed to be directed. But as soon as he reaches clinical training the average medical student has already been made so callous by his professional elders that he cynically shrugs off any personal responsibility in preventive medicine by leaving it forever after to official agencies—meaning the overworked and underpaid governmental public health officials. The average doctor pays only lip service to their work. The average doctor is well aware that the effective application of preventive medicine reduces his practice. The average doctor knows, but dares not admit, that his income depends on the presence of sickness. He has a financial interest in the illness of his patients, and no monetary stake in the health of his clients. It is impossible under these circumstances for a practicing physician honestly to support measures in behalf of public health or preventive medicine. It is this amazing discrepancy between what the

organized medical profession preaches and what its individual members practice that is so disconcerting to intelligent laymen.

The effective practice of preventive medicine by the individual physician is possible. While it is not traditional, and while current custom may be against it, every moral factor is favorable for it. It can be done without invoking the paper specter of state medicine or the bogey of medical insurance, or the presumed difficulties of contract practice. It can be done in such a way as to preserve and enhance the individual, personal relationship between a doctor and his patient which group practice, a jungle growth of specialism, and a commercially efficient office and hospital management, have almost destroyed.

The effective practice of preventive medicine is possible. A physician may make a personal individual arrangement with a patient. In accordance with his judgment on the patient's physical condition, family and business environments, and his general attitude and position, the physician may, for a fee, varying with these conditions, agree to examine the patient as often as he thinks expedient, give such advice or prescriptions as seem warranted, and make such house calls as he may think wise. The agreement should not include special diagnostic services, emergency affairs, hospitalization, or operative or other special procedures. The physician in such an arrangement would be a health adviser on a retainer fee.

Under the genial leadership of Langley Porter, such a system has been followed in pediatrics in San Francisco for over twenty years. Its wide extension and popularity are sufficient evidence of its practical success. It is amazing that so simple a method of providing a practical financial incentive to the effective practice of preventive medicine has not been universally advocated. Under such a system it is obviously better for the doctor to keep his patients well than to have to give treatment when they are sick. The doctor gains in time, which ideally would be used to improve his knowledge and not merely his golf. The proposed scheme is so simple, and sounds so reasonable, that there must be something wrong with it which has prevented its adoption long ago. The medical profession has had the example of the legal profession in practicing preventive law for many years. In San Francisco, I am reliably informed, about three-fourths of the income of the more reputable lawyers is derived from retainer fees operating to keep both average individuals and families, as well as estates and large corporations, from court or other legal complications.

To my surprise I have been unable to find any intelligent medical opinion which can point out a serious disadvantage or fallacy in the proposal, except a vaguely expressed fear that the physician may occasionally be imposed upon. If the desired relation of friendship and mutual trust existed between physician and patient, abuse in either direction would be unlikely, and even if it were to occur, either party could terminate the agreement.



## IN CONCLUSION

As always, I have talked too much and said too little. My appraisal of modern medical practice may be criticized on the ground that, since I am not a physician, I know nothing about its problems; but not on the ground of lack of sincerity or sympathy. I have tried to discuss four formidable necessities of modern medicine: first, the need of correlating the scientific and artistic phases of practice; second, the need of developing "medical ethics" in a manner consistent with idealistic ethical theory; third, the need of raising general practice to the dignity of specialism; and fourth, the need of providing a monetary incentive to the effective practice of preventive medicine—preventive medicine as the general practitioner's specialty, practiced on a retainer fee basis. I hope this tough meat which you have been given to chew over will not jeopardize your kind friendship toward me. Your tolerant friendliness means much in comfort and inspiration to me, and I hope that I may reciprocally justify such a feeling in you.

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## REFERENCES

1. Leake, C. D.: Percival's Medical Ethics. Baltimore, 1927, pp. 1-57; J. A. M. A., 81:366 (Aug. 4), 1923; Boston Med. Surg. Jour., 197:357 (Sept. 1), 1927.
2. Economics and the Ethics of Medicine, compiled by the Bureau of Medical Economics of the American Medical Association, Amer. Med. Assn. Bull., 31:93-94 (May), 1936.

## ACUTE APPENDICITIS\*

## A CLINICAL REVIEW OF ONE THOUSAND CONSECUTIVE CASES

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IT is the purpose of this paper to show the need for early operation in acute appendicitis, and to emphasize the application of certain measures in its treatment. The number of publications concerning appendicitis is increasing (Table 1); the renewed interest in the subject is likewise reflected in the serious discussion, in larger medical centers, of various controversial views. The present discrepancies in the operative mortality rate point toward some basic deficiencies in the present mode of treatment. There yet remain many controversial questions pertaining to surgical intervention, among which some of the most important are the time of operation, the necessity for drainage, the type of incision, the kind of anesthesia, etc. In order to justify our present methods of

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TABLE 1.—Literature Concerning Appendectomy and Appendicitis 1914-1935

Year	Number of Articles
1914	33
1925	142
1929	323
1930	292
1931	334
1932	348
1933	392
1934	365
1935	370

procedure, we have analyzed the consecutive cases of one thousand patients surgically proved to have acute appendicitis who underwent immediate operation on the emergency service of the San Francisco Hospital. This series is comprised of patients treated on one service, according to the same policy, over a ten-year period. During this period, the operative mortality in all types of acute appendicitis reported here was 3.6 per cent. In gangrenous appendicitis without perforation, it was 1.9 per cent, and with perforation, somewhat higher (Table 2). These figures compare favorably with those of other American and European clinics<sup>1</sup> (Table 3).

## ONE THOUSAND CONSECUTIVE CASES OF ACUTE APPENDICITIS

Most of the emergency surgery for the indigent is done in the San Francisco Hospital (bed capacity 1,000) and, as has been pointed out by others, the type of appendicitis seen in this stratum of society is usually of the variety most difficult to treat. The patients, of poor physical stock, are more likely to delay in seeking medical attention and to indulge in self-medication and purgation than are other classes.

## FOUR GROUPS

We have divided our cases into four major groups, on the basis of pathologic changes proved at operation. These groups, with their respective mortality rates, are:

	Drained Per Cent	Not Drained Per Cent	Total Per Cent
1. Simple acute appendicitis	.....	.....	0.84
2. Gangrenous appendicitis, without perforation	9.0	0.9	1.9
3. Gangrenous appendicitis, with perforation	10	2.4	8.8
4. Appendiceal abscess	.....	.....	5.3

This classification has been chosen because of its simplicity. One great difficulty, in comparing statistics, is the lack of uniformity in classification by various authors, and the inaccurate or incomplete statement of the pathologic changes actually present.

## DIAGNOSIS

The preoperative diagnosis was seldom in doubt. The classical history of abdominal pain, followed after a few hours by increasing signs and symptoms of localizing peritonitis, was the usual observation.

A good history and a careful physical examination are most important. In our experience, temperature and blood count seldom are the determining factors in diagnosis, because of their



TABLE 2.—Mortality by Type

Type	Description	Cases	Total Mortality Per Cent	Mortality Per Cent, Excluding Deaths and Not Resulting from Appendicitis
I	Acute, simple .....	355	0.84	0.65
II	Gangrenous, nonperforated .....	256	1.9	1.9
III	Gangrenous, perforated .....	202	8.8	7.4
IV	Appendiceal abscess .....	187	5.3	4.4
	Total .....	1,000	3.6	3.0

wide variation in identical appendiceal pathologic states.

Most errors and delays were made in the true pelvic and retrocecal types of appendicitis. In both instances, while the prodromal history, etc., may be suggestive, there is little or no evidence of parietal peritoneal involvement. The pelvic appendix often produces signs and symptoms referable to the bladder and rectum, such as frequent stools and dysuria. Further, in pelvic appendicitis the early signs and symptoms of peritonitis may be those referred to the left lower quadrant. The presence of a tender mass rectally is sufficient to substantiate the diagnosis of pelvic appendicitis in any suspicious case. The most significant sign in retrocecal inflammation is tenderness in the flank, with little or no rigidity of the anterior abdominal wall. Because of the proximity of the right ureter to the inflammatory process, one often finds signs and symptoms suggestive of disease of the right upper urinary tract.

THE TIME TO OPERATE

Perhaps most controversy arises concerning the problem of the time to operate. Agreement is general that, in the early stages of acute appendicitis, operation should be performed immediately. Methods differ, however, for those patients who are seen late—that is, after the third day. From the third to the sixth day of the attack is the most dangerous period. Stanton,<sup>2</sup> in an analysis of 60,000 cases reported recently, shows that the mortality in that period is from 8 to 12 per cent. During this time, either the process is subsiding or peritonitis is present. As Richardson<sup>3</sup> has said, "It is too late for early operation and too early for late operation." Such distinguished surgeons as Murphy,<sup>4</sup> Fowler,<sup>5</sup> and Ochsner<sup>6</sup> in the United States, Sherron<sup>7</sup> in England, and Fromme<sup>8</sup> in Germany, have defended expectant treatment in certain of these difficult types of appendicitis. It has been said, no doubt correctly, that it is the unintelligent application, and the abuse of the conservative regimen, which have

done more harm, and that it is the choice of unsuitable cases which has brought this principle into disrepute. Wilkie<sup>9</sup> said: "Those who say that there is no state in which one should not operate may be skillful technicians, but they are not surgical pathologists." Despite such formidable opinion to the contrary, we feel strongly that appendicitis in any stage of development, except for a small group of cases to be mentioned later, requires immediate surgery. To substantiate or disprove this statement, the following questions must be answered:

- 1. Can the pathologic changes present be determined accurately enough before operation to warrant delay?
- 2. Although it is true that late cases have a high mortality, has it been convincingly shown that the mortality is actually higher with operation than without it?
- 3. Is the low mortality in this series the result of any factor other than the choice of the time to operate?
- 4. When is the time to operate?
- 5. Which patients should not be operated upon?

1. *Can the pathologic changes be determined accurately enough before operation to warrant delay?*

A review of the literature shows a cumbersome number of statistics which seem to support widely diverse conclusions. This may be explained by the lack of uniformity in the classification of types of appendicitis, and the clinical basis upon which the classification is made. From clinical study alone it is almost impossible to determine accurately the stage of the changing pathologic process in acute appendicitis. Not everyone can, as Deaver<sup>10</sup> has said, "put my ear to the abdomen, lay my hands upon it . . ." and arrive at a clear conception of what is occurring beneath the abdominal wall. Kennedy,<sup>11</sup> discussing what he derisively terms "the physiologic surgeon," and asks: "What is this quiescent stage of the physiologic surgeon? It can be summed up as a mistake in his assumption as to the extent of peritoneal involvement, so that when the physiologic surgeon puts his patient on the waiting list for the subsidence of the acute symptoms ere he considers the patient surgical, *he is wrong*, not only in his idea of the extent of the pathologic involvement, but he is permitting a very local condition to become a very diffuse one. He is outraging the law which gives success in perforative lesions of the abdominal cavity, namely, the earliest possible

TABLE 3.—Comparison of Results of Treatment of Acute Appendicitis in Large European and American Clinics

	Operative Mortality Per Cent
European clinics .....	5.5
American authors .....	5.10

TABLE 4.—*Seventy-five Preoperative Diagnoses*

	Local Pathology Change	Location of Appendix	Question of Rupture	Extent of Peritonitis	Abscess Formation
Per cent correct .....	33.3	40	58.6	61.5	31.3
Per cent incorrect .....	53.3	49.3	41.4	34.6	14.6
Not noted .....	13.3	10.6	0	0	4

operative hour. . . . The physiologic surgeon never gets an opportunity to check up on his mistakes; he never learns the true extent of the pathologic lesion other than from the postmortem room."

In order to ascertain the accuracy of preoperative diagnoses, various members of our staff committed themselves in writing before the patient went to surgery. The results of seventy-five opinions were enlightening, in that in estimating "perforation" or "nonperforation," the percentage of error was 41.4; in estimating the extent of peritonitis (*i. e.*, whether it was local or general) the percentage of error was 33 (Table 4).

The underlying pathologic condition is complicated, and is different in each patient. In many of our patients, rupture occurred within six hours, while in a larger number, perforation had not occurred after seventy-two hours. As subject to criticism as this tabulation may be, it does illustrate the fact that in many cases, at least, no conclusion may be drawn with any degree of certainty as to the underlying pathologic factors. Even if such information were obtainable, it is not possible to know in which direction progress is taking place. As Gile and Bowler<sup>12</sup> said: "In delaying surgical intervention in early peritonitis with a rate of 6.5 per cent, we had no preoperative basis for prophesying whether the transfer would be to abscess formation and a mortality of 3.33 per cent, or to general peritonitis with a rate of 36.4 per cent." This is the crux of the situation. The underlying pathologic change is different in each case of appendicitis. It is this underlying change and not the element of time which determines the outcome. The physical evidence of peritonitis is also a very variable factor depending upon the location of the appendix, the pathologic condition, and the reaction of the patient. We are convinced that even competent observers cannot estimate accurately the pathologic condition preoperatively, and hence it seems illogical that we should pursue a course of expectant treatment on such questionable premises. Furthermore, there was an error of 100 per cent in two of our recent cases, in one of which the condition was an acute Meckel's diverticulitis; in the other, a

volvulus of the cecum with early gangrene. It is obvious that delayed treatment of such patients would have been disastrous.

2. *Although it is true that late cases have a high mortality, has it been convincingly shown that the mortality is higher with operation than without it?*

The answer to this question is not difficult. As stated above, statistics are exceedingly numerous in the literature on appendicitis; they appear to point in opposite directions. Since the same patient cannot, on the one hand, be operated upon in a certain stage of the disease and, on the other, be accorded conservative treatment at the same stage, no approach to a scientific decision may be reached. Furthermore, the criteria by which the classifications were evolved vary so widely that one is never sure of the comparableness of the different series. The issue is confused further by variations in the classifications themselves. Ochsner<sup>13</sup> has said that he obtained 90 per cent recoveries by the use of his conservative method in a type of case which formerly had the same percentage of deaths. It is to be noted, however, that conservatism was supplemented by meticulous adherence to his fourteen dicta which included the Fowler position, the administration of fluids, use of morphia, starvation, etc. Had these points been followed in connection with operation, the mortality rate might have been different in the earlier series.

3. *Is the low mortality of this series the result of any factor other than the choice of the time to operate?*

Intelligent preoperative and postoperative care bear a direct ratio to mortality. A few hours' delay before operation frequently is recommended in order that the patient's general condition may be improved. As Arnheim and Neuhoof<sup>14</sup> stated: "The trip to the hospital may have been long and difficult, the patient may arrive in a highly excited state, the patient may be partially dehydrated. These are some of the factors which often lead us to wait a few hours or longer before proceed-

TABLE 5.—*Operative Mortality in Representative and Comparable Series*

	Cases	Mortality Per Cent
San Francisco Hospital.....	1,000	3.6
Roland (Atlanta) .....	4,270	4.4
Keyes (St. Louis) .....	771	3.8
Fairchild (Woodland) .....	541	4.4
Bower (Philadelphia) .....	5,121	5.9
Reid (Cincinnati) .....	2,003	8.5

TABLE 6.—*Drainage Comparison With Russian Series (1936)*

	San Francisco Hospital	Leningrad Institute for Quick Aid
Number of cases .....	1,000	1,944
Per cent of abscesses following drainage .....	13.2	7.8
Per cent of abscesses without drainage .....	2.9	3.3
Per cent of mortality following drainage .....	9.8	17
Per cent of mortality without drainage .....	1.4	1.5

ing with operation in the second and third day of attack in acute appendicitis."

If early peritonitis is noted at operation, the accepted treatment of peritonitis is begun at once before paralytic ileus develops. The early and continuous use of the Connell suction is a valuable adjunct to postoperative treatment. It creates a negative pressure which prevents gastric dilatation, paralytic and mechanical ileus. If the apparatus functions properly, the need for enterostomy becomes very limited. Fowler's position and hot massive abdominal stupes also aid in the patient's satisfactory convalescence. The intelligent use of pitressin-like compounds has also proved valuable in the treatment of paralytic ileus. The early use of cathartics or enemas after operation has dangerous potentialities, and these measures are never employed by us. Recently we witnessed elsewhere two fatalities which were the direct result of postoperative enemas. In these, the friable cecum was ruptured at the site of the appendectomy.

#### 4. *When is the time to operate?*

For the reasons stated above, it is our conviction that immediate operation is essential. This has long been axiomatic in the treatment of the early cases. We believe that, with few exceptions, this same dictum should obtain in all cases and types of acute appendicitis regardless of the period in which the patients are first seen, and that this policy is sound is evidenced by our mortality rate, which compares very favorably with those reported in the literature (Table 5).

#### 5. *Which patients should not be operated upon?*

Those patients whose condition is such that they are not likely to survive the ordeal of the operation itself are not operated upon immediately. This group includes the patient who is in the latest stages of the disease. It seems likely that many of the papers which advocate expectant treatment refer to this type of peritonitis. If this is so, we are in agreement with them; the most immature surgical judgment would not dictate operation in such cases.

Our own experience places patients with the following signs and symptoms in this group:

(a) Those in poor general physical condition either from coincidental disease, such as a cardiac or pulmonary lesion, or those debilitated from long sepsis or toxic state.

(b) Those with peritonitis that, from physical signs and the general bodily reaction, seem unusually acute and fulminating. In these patients the pulse is rapid and the volume impaired. Often there is other evidence of threatened circulatory failure. This condition is seen frequently in children. This group of patients undoubtedly will do better if operation is deferred until a conservative type of therapy can build up the general or local resistance. The so-called Ochsner type of conservative therapy has its ideal application in these patients. In many so treated, nature will ultimately reduce the surgery indicated to a simple incision and drainage of a localized abscess; usually the abscess points into the cul-de-sac and should be opened through the rectum or vagina.

If our policy of early operation is not increasing our mortality rate, then the pressing demand in some clinics for delayed operation has little justification. It is interesting to note that recently, in a comparable series of cases studied at the Leningrad Institute for Quick Aid in Russia,<sup>15</sup> the same conclusion was reached (Table 6). Further, early operation entails the factor of greater economy in the matter of prolonged hospitalization. The presence of long-standing intra-abdominal pathologic conditions, such as would follow delayed treatment, must lead to a greater number of intra-abdominal complications. The eventual drainage of intra-abdominal abscesses often results in ventral hernia.

#### TYPES OF INCISIONS

We have favored modifications of the McBurney incision in most instances. The exposure has been adequate and the convalescence shorter and smoother.

A right rectus incision provides very free and adequate exposure, but there is always the danger of disturbing a localized peritonitis and thus contaminating the entire abdominal cavity.

Objections to drainage through a rectus incision are those of sequelae such as evisceration, early and later intestinal obstruction, ventral hernia, etc. Since we have almost ceased to drain, our objections to the rectus incisions are less than formerly.

#### DRAINAGE IN PERITONITIS

For several years we have avoided all intra-abdominal drainage in peritonitis.<sup>16</sup> Perforated peptic ulcers, traumatic injuries of the gastrointestinal and genito-urinary tracts are closed without drainage. It is only in the chronic, well walled-off abscesses that we still use drains. The patients in this series who had drainage were those, for the most part, in the earlier years of our study before the general use of drains had been discarded. There is abundant clinical and laboratory evidence to show that drainage of the abdominal cavity in peritonitis is impossible and inadvisable for the following reasons:

(a) Within a very few hours the drain ceases to act other than as a foreign body which is walled off by adhesions of omentum, intestines and coagulum.

(b) The presence of a foreign body, such as a drain, has been shown to lower the natural immunity of the peritoneum against infection. (This would indicate that the drain is a menace rather than a help.)

(c) Drainage causes a temporary loss of the normal defensive peritoneal fluid.

(d) There is a longer and more stormy convalescence because of the added intra-abdominal pathologic changes caused by the foreign body, resulting in partial obstruction, ileus, and increased peritonitis.

(e) The incidence of infection in the wound is greater; an intra-abdominal drain through an infected wound attracts and harbors all the dependent suppuration of that abdominal wound. The profuse purulent discharge from such a drained wound arises primarily from suppuration

TABLE 7.—*Drainage*

	Intra-abdominal Complications (Pelvic Abscess; Ileus, Dynamic and Adynamic; Hemorrhage, Subphrenic Abscess, etc.)		Pelvic Abscess Per Cent		Mortality Per Cent	
	Group II Gangrenous Nonperforated	Group III Gangrenous Perforated	Group II	Group III	Group II	Group III
Drained (121 cases)	19 per cent (of 32 cases)	37.7 per cent (of 89 cases)	9.3	15.3	9	10
Not drained (337 cases)	2.7 per cent (of 224 cases)	8.9 per cent (of 113 cases)	0	7.9	0.9	2.4

in the abdominal wall and not from within the abdominal cavity. The depth of such a drainage tract, therefore, collects suppuration from the abdominal wound and hence the intra-abdominal infection surrounding the drain is aggravated.

(f) There is a high incidence of early and late postoperative hernia.

(g) Necrosis from the pressure of the drain has been the cause of many fecal fistulae and fatal hemorrhages. (We have had only one case of fecal fistula in this series of one thousand cases of acute appendicitis, and it occurred in a case in which drainage was employed.)

(h) Drainage has increased the incidence of secondary intra-abdominal abscesses in our series (Table 7).

We wish to emphasize that this discussion regarding drains refers to intra-abdominal drains, and not to those which are placed in the abdominal wall down to the peritoneum. We feel that adequate drainage of a badly contaminated abdominal wound is very necessary.

#### CONCLUSIONS

1. An apparently increasing mortality rate from peritonitis needs very careful study with a view to the standardization of treatment in acute appendicitis.

2. We believe that immediate surgery, well done, will give the best ultimate results.

3. There is a very small group of patients whose general and local condition may contraindicate immediate surgery. This group is described.

4. The fallacy of delayed treatment is discussed.

5. The arguments against intra-abdominal drainage in peritonitis are stated.

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#### REFERENCES

1. Campiche, P. S.: Digest of Statistics on Appendicitis with Deductions Therefrom, *West. J. Surg.*, 41:605 (Nov.), 1933.

2. Stanton, E. MacD.: Acute Appendicitis—A Study of the Correlation Between the Time of Operation, the Pathology, and the Mortality, *Surg., Gynec., and Obst.*, 59:738 (Nov.), 1934.

3. Richardson, M. H., and Brewster, G. W. W.: Appendicitis—Remarks Based Upon a Personal Experience of Seven Hundred and Fifty Cases, *Boston M. and S. J.*, 139:25 and 53, 1898.

4. Murphy, John B.: *Surgery of the Appendix Vermiformis*, Keen's Surgery, 4:727-796, 1914. W. B. Saunders Company, Philadelphia and London.

5. Fowler, George R.: Diffuse Septic Peritonitis, *M. Rec.*, 57:617, 1900.

6. Ochsner, A. J.: The Mortality in Appendicitis—Its Cause and Limitation, *Medical News*, 82:833, 1903.

7. Sherren, James: An Address on Appendicitis, *Brit. M. J.*, 1:727, 1925.

8. Fromme, A.: Soll im Intermediärstadium der akuten Appendicitis operiert werden? Erwiderung auf die Arbeit von Merckens, *Deutsche Ztschr. f. Chir.*, 119:562, 1912. Leipzig. Beiträge zur Appendicitisfrage auf Grund der Erfahrungen der Göttinger Klinik in den letzten vierzehn Jahren, *Deutsche Ztschr. f. Chir.*, 108:429, 1910-11. Leipzig.

9. Wilkie, D. P. D.: Mortality in Acute Appendicular Disease, *Brit. M. J.*, 1:253, 1931.

10. Deaver, J. B.: An Opinion on the Present High Operative Mortality in Acute Appendicitis, *Surg., Gynec., and Obst.*, 51:529, 1930.

11. Kennedy, James W.: *Practical Surgery of the Joseph Price Hospital*. F. A. Davis Company. Philadelphia. 1928.

12. Gile, John F., and Bowler, John P.: The Management of Perforated Appendicitis, *J. A. M. A.*, 103:1750 (Dec. 8), 1934.

13. Ochsner, A. J.: See reference No. 6.

14. Arnheim, E. E., and Neuhof, H.: A Lowered Mortality in Acute Appendicitis and the Basis Therefor, *Surg., Gynec., and Obst.*, 59:189 (Aug.), 1934.

15. Krasnoselskiy, M. V.: Operative Treatment of Appendiceal Peritonitis Without Drainage, *Vestnik khir.*, 40:193, 1935. Leningrad.

#### DISCUSSION

CHARLES T. STURGEON, M.D. (1930 Wilshire Boulevard, Los Angeles).—Though we continue to write about acute appendicitis, expressing our views and methods of procedure, the mortality also continues to increase. Many factors are responsible for this increasing mortality:

1. Delay in seeking medical attention.
2. Incorrect diagnosis.
3. "Watchful waiting."
4. Inadequate preoperative preparation of the patient.

I feel that the greatest factor contributing to the mortality of appendicitis is the so-called "watchful waiting."

We have all been taught that as soon as the diagnosis of appendicitis has been made, an appendectomy should be performed immediately. Recently many papers have appeared wherein the author states that patients who have had symptoms of appendicitis for two or three days should be placed under observation; and many doctors, especially the younger men, have accepted this procedure as best applicable to the majority of cases of appendicitis.

In my opinion, "watchful waiting" should be applied only to cases with questionable diagnosis, and only after a careful history and examination has been made. The patient should be hospitalized and carefully observed and

TABLE 8.—*Mortality by Age Groups*

Age	Cases	Deaths	Mortality Percentage
0-9 .....	83	5	7.9
10-19 .....	327	5	1.5
20-29 .....	307	5	1.6
30-39 .....	134	7	5.2
40-49 .....	83	6	8.2
50-59 .....	36	4	11.1
60-69 .....	19	4	21.0
70-79 .....	3	0	0
80-plus .....	2	0	0
Total .....	1,000	36	3.6



examined every two hours. As soon as the diagnosis is established, an appendectomy should be performed.

We all realize that patients presenting a generalized peritonitis do not come under the above classification. These patients require observation and preoperative preparation, and when a localized abscess is discovered, it should be drained.

We have stressed the point that the laity must be instructed in the fallacy of delay in consulting a physician, and as to the danger of administering cathartics to patients with abdominal pain. We should also reinstruct the medical profession that immediate surgery is still the treatment of appendicitis.

✱

H. GLENN BELL, M.D. (University of California Hospital, San Francisco).—It is difficult to discuss a paper when one is in complete accord with the ideas expressed by the author. That is my position in regard to this article. For the past seven years I have followed the plan suggested by Doctor Rhodes and his co-authors, and the results have been very satisfactory.

In one of the tables of Doctor Rhodes' paper he has noted the operative mortality in representative and comparative series from different places. I am familiar with one of the large series cited, and know that in that series, even when treatment has not been delayed, drainage is used much more often than is our custom. Whether that is the entire reason for their higher mortality, it is rather difficult to say. It is reasonable to believe, however, that such drainage plays a tremendous part.

Discussion of isolated cases prove nothing. Only by a careful analysis of a thousand or more cases, such as Doctor Rhodes has made, can one hope to draw conclusions which will help the average surgeon in the more intelligent care of his patients.

In general, the mortality of acute appendicitis in this country is still too high. I am convinced that one reason for this is the feeling that acute appendicitis is a simple disease and that operation for it is simple to perform. Yet we know that appendectomy for acute appendicitis may be a most difficult operation and may tax the surgical skill and judgment of the best surgeon in the country.

✱

EDWIN M. TAYLOR, M.D. (230 Grand Avenue, Oakland).—It is a pleasure to have an opportunity to discuss some of the controversial points of Doctor Rhodes' paper on "Acute Appendicitis," namely:

When Is the Correct Time to Operate on "Late Cases."—This cannot be set from the beginning of the attack, as some authors attempt to do, but from the physical finding. It seems to me that the very desperately ill, toxic patient, with rapidly diffusing or already diffused peritonitis, has a better chance of recovery if operation is delayed and the so-called Oscher treatment is instituted. The other type of case in which I feel operation should be delayed, is the one with early beginning abscess formation, where there still remains some generalized peritonitis. In the latter type of case, usually in a week or ten days the localized abscess can be drained, and often the appendix removed, if readily accessible, with comparative safety.

Regarding Drains.—The profession in general are using less drains, but I cannot feel quite safe in closing up an abdomen in which the appendix has perforated. I cannot feel that a soft rubber drain is such a hazard in the abdomen. Maybe drains do not actually drain for many hours, but when placed in dependent points, as in the pelvis, in the right lateral gutter or beneath the terminal ileum, are there not sinus tracts formed, through which drainage would take place, should pus accumulate in these areas?

Type of Incision.—This is of paramount importance in treating acute appendicitis with or without peritonitis. The McBurney, or some modification of the lateral incision is certainly the incision of choice when the diagnosis of appendicitis is at all certain. Some large clinics have greatly decreased their mortality by almost universally adopting this type of incision without any change in their use of drains or methods of handling the cases.

Doctor Rhodes' results show a 3.6 per cent operative mortality, certainly lower than any reported from similar clinics.

## THROMBOSIS AND EMBOLISM: PREOPERATIVE AND POSTOPERATIVE CARE IN THEIR PREVENTION\*

By JOHN H. BREYER, M.D.  
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DISCUSSION by E. Vincent Askey, M.D., Los Angeles; Willard J. Stone, M.D., Pasadena; H. Brodie Stephens, M.D., San Francisco.

MASSIVE pulmonary embolism has produced tragic and sudden deaths in the practice of every experienced surgeon. It is a postoperative disaster which every surgeon fears. Concerning fatal pulmonary embolism, statistics seem to show that it accounts for about 6 per cent of surgical deaths. One series, by Wharton and Pierson, reported that nearly half of the deaths after gynecologic operations were due to pulmonary embolism. Postoperative thrombophlebitis, which happens more frequently, prolongs hospitalization and often incapacitates the patient for months. Femoral thrombophlebitis, as reported by Albanus, occurred sixty-three times after 1,140 laparotomies, and forty-four of these cases resulted in embolism, of which ten patients died. A critical review of the literature is hereby attempted, hoping to develop some practical plan of prevention which might lessen the incidence.

### FREQUENCY

Thrombosis and embolism are complications which occur in many diseases and conditions other than surgical and are, therefore, of general medical interest. They occur in the infectious diseases, as in influenza, pneumonia, tuberculosis, typhoid fever, and in sepsis. They occur in diseases in which the blood itself is altered, as in the anemias, leukemias, and in polycythemia; in cancer and in the degenerative diseases of the vascular system. American, as well as European literature, seems to indicate that the incidence of thrombosis and embolism has increased since the period of the World War. A report from the department of pathology of the University of Toronto, published in 1933, states that they have demonstrated pulmonary emboli in about 10 per cent of routine autopsies upon adults. They found it more common in medical than in surgical cases. In 6,581 necropsies performed in the city hospital at Kiel, Germany, reported in 1934, thrombosis was encountered in 14 per cent, and pulmonary embolism was observed in 9.7 per cent of the autopsies. From 1919 to 1928 the incidence of thrombosis cases had increased eight and one-half times the average for the years prior to 1919. Thrombosis occurred about equally in the two sexes, and was more frequent after forty-five years of age.

### RELATION TO SURGICAL TRAUMA

As surgeons we are concerned whether trauma incident to the operation may be an activating factor in the production of thrombosis and embolism. Thrombosis is primarily a physiologic

\* Read before the General Surgery Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

process, a defense mechanism, otherwise we would all die of hemorrhage. This defense mechanism comes into action when injury to the blood vessels and tissues takes place. Its initiation appears to be through the action of some vital substance or substances called forth by the injury, which are variously known as fibrin ferment, thromboplastin and thrombokinase, in the formation of which the leukocytes, blood platelets, calcium salts, and tissue extracts play an important rôle. Normally, clot formation takes place sufficient to plug the severed vessels, and then ceases. Why it ceases is as great a mystery as why it starts. When clot formation exceeds its normal required limits and extends into the stream of circulating blood, it becomes the pathologic process of thrombosis. The restraining limiting factors are no longer acting; why, we do not know. Natural control of the tendency to thrombosis may again be reestablished, holding the tendency in abeyance either permanently or for a time. When again brought under control absorption, organization, endothelialization and canalization of the thrombus may take place.

#### CONTRIBUTING CAUSATIVE FACTORS OF PATHOLOGIC THROMBOSIS

The most widely accepted contributing factors in the causation of pathologic thrombosis are: (1) slowing of the circulation; (2) changes in the vessel wall due either to trauma or infection; and (3) alterations in the composition of the blood itself. It is now generally recognized that the exciting cause is not one factor alone, but that an interaction of two or more factors is probably necessary for the development of thrombosis.

*Slowing of the Circulation.*—Slowing of the circulation is probably the most important cause in the development of thrombosis. Thrombosis forms rarely in the heart and arteries, but is comparatively common in the veins. It is rare in the young with efficient circulation, but becomes more frequent in advancing age with degenerative changes in the cardiovascular system, which may result in slowing of the blood stream with lowering of the blood pressure. Thrombosis occurs quite frequently during life in the prostatic plexus of veins. Almost any adult male past middle life has calcified phleboliths in this plexus of veins as a result of previous formation of thrombi, and at death, from any cause, this plexus is likely to be distended with antemortem clots. In the female the cervical and vaginal plexuses may be similarly affected, though less frequently so. A saccular aneurysm is usually more or less filled by a thrombus. It is believed that this is due to the simple stasis or stagnation of the circulating blood at these particular locations. As pointed out by Welch, the slowing and eddying of the circulation causes the platelets to agglutinate along the vessel wall to form a homogeneous layer. Following this there is a settling out of white blood corpuscles, after which fibrin begins to form at the margins of the clot. The vessels most often involved in this type of bland thrombosis are the large veins of the extremities and pelvis, especially the femoral and iliac veins.

*Changes in the Vessel Walls.*—That changes in the vessel walls due to either trauma or infection may lead to thrombus formation at the site of injury has long been recognized. A thrombosis may develop, however, at a location distant from the injury site and away from the source of infection. Whether a phlebitis is primary, with secondary infection of the thrombus, or vice versa, is difficult to prove. Postoperative and puerperal phlebitides are usually explained as due to infection, being more common in patients in whom infection is present. However, a direct avenue of infection cannot always be demonstrated. Infections no doubt add to the general impairment which increases the tendency to vein complications. Many authors believe that the toxins from infection, necrotic processes, and from tissue damage are probably important contributing factors in promoting thrombosis. The vein reaction to the formation of the thrombus may be a nonbacterial reparative inflammation of the mildest form, or may be of the acutely inflammatory and suppurative type. The thrombus may be but loosely attached to the vein wall or may be firmly attached as a result of the inflammatory reaction.

*Alterations in the Composition of the Blood.*—Changes in composition of the blood have frequently been described as favoring the development of thrombosis. It is variously attributed to increased friability of the platelets, to increase in their number, to shortening of coagulation time, increased viscosity, accelerated sedimentation rate, dehydration, the augmentation of the clotting factors, and other changes. These are changes which cannot readily be measured, and these elements probably play no rôle in the initiation of the thrombus, but may influence the secondary coagulative phase affecting the propagation of the peripheral portions of the thrombus.

#### EMBOLI

An embolus, of course, is a solid, oily or gaseous mass in the free blood stream. The danger of thrombo-embolism is inversely proportionate to the amount of vein inflammation accompanying the thrombus. The pathology produced depends on the size of the embolus, its septic or aseptic character, and the size and location of the occluded artery. In pulmonary embolism the right lung is more often involved than the left, and the lower lobes more frequently than other parts of the lung. In order to be of size to obstruct one or more of the main branches of the pulmonary artery, the embolus must take origin from a major vein, which has been shown by autopsy studies in 85 per cent of cases to be usually the femoral or iliac veins. Under such conditions pulmonary edema follows, with death taking place in a few minutes, or within several hours in all but exceptional cases. Fifty per cent die within fifteen minutes.

Moderate-size emboli pass the main pulmonary artery and occlude smaller branches, resulting in pulmonary infarcts. A hemorrhagic consolidation of the infarcted lung or lobe follows, particularly if there is a coexistent respiratory or cardiac impairment. Such infarcts are said to produce a

mortality of 12 to 15 per cent. Many of the smaller-size emboli produce no detectable clinical disturbance, and occur more frequently than is generally supposed. Septic infarcts may result in empyema, pneumonitis or lung abscess. However, the infrequency of infection in pulmonary infarction is offered as evidence of the nonbacterial origin of the thrombus.

#### CLINICAL OBSERVATIONS ON THROMBOSIS AND EMBOLISM

The following clinical details are of interest in their relation to thrombosis and embolism. Post-operative massive fatal embolism is liable to occur during the convalescent period, usually during the second week, without swelling of the legs or evidence of thrombophlebitis, or any clinical signs which would attract the attention of the surgeon to the likelihood of its occurrence. The majority of the patients are between forty and seventy years of age, and obesity seems to be a predisposing factor. The presence of cardiovascular degenerative changes and carcinoma have been noted in a high percentage of cases. The type of anesthetic used appears to have no bearing on the occurrence of this unfortunate accident which seems to follow abdominal and pelvic operations in about 70 per cent of cases. Fatal embolism most frequently follows stomach surgery, especially for cancer; pelvic surgery, especially for fibroids of the uterus; and operations for prostatic hypertrophy. Gall-bladder surgery, operations on the large intestine, appendectomies and even hernia operations may be followed by this complication. Thyroid surgery is particularly free from post-operative thrombosis and embolism. Thrombophlebitis of the superficial veins of the extremities usually does not result in large emboli, but repeated small infarcts, however, may result from dislodged fragments of the advancing type of phlebitis. When inflammation and thrombosis involve the deep veins of the extremities, it gives the operator concern. Whether such a thrombophlebitis is the suppurative or nonsuppurative type, the formation of an embolus is always a possibility.

#### PROPHYLAXIS: PREOPERATIVE MEASURES

It has been said, "there is a probability that the tendency to thrombosis may depend upon the patient's physical condition rather than that he has undergone an operation, but it is equally probable that had he not had the operation the thrombosis would not have developed." Prophylaxis against thrombosis and embolism rests largely upon the care with which we estimate our surgical risks, and the preoperative preparation of such impaired cases. This is especially important since the trend is to offer surgery to elderly patients even with late-stage pathology. Preventive treatment aims at (1) prevention of thrombosis and (2) the adequate treatment of manifest thrombosis. The factors responsible for thrombosis have been enumerated. It probably requires the interaction of sev-

eral factors in the majority of cases, yet some develop thrombosis with a minimum of the contributing factors, and others with the maximum number may escape this complication. The patient should be put in the best possible physical condition and made the best physiologic risk possible under the circumstances. A careful chest examination by an internist should be part of the pre-operative routine. Definitely known foci of infection of teeth, tonsils, prostate or cervix should be considered in their possible relation to the inevitable hazard which accompanies any operative procedure. Only the acute surgical emergencies should be operated in the presence of "head colds." The appropriate cardiovascular stimulants should be used when evidence of myocardial insufficiency is present, such as increased pulse rate with falling blood pressure. Digitalis, a drug much misused by surgeons, is often not only useless, but harmful. The use of digitalis in adequate dosage should be restricted to cardiac insufficiency or decompensation, and especially to disturbances of rhythm such as auricular fibrillation, in which a rapid irregular heart rate is accompanied by a pulse deficit. Slowing of the heart rate in auricular fibrillation as a result of the administration of digitalis is beneficial. The administration of digitalis is of doubtful utility to slow the heart rate in toxic or septic conditions. The use of caffeine or the theobromin or theophyllin salts for their general circulatory effects are much more frequently indicated when cardiac stimulation is believed necessary. The body fluids should be increased and maintained by blood transfusions, salt and glucose solutions before, during and after operation. Secondary anemia, if present, should be improved by the various methods available. Starving a patient before operation should be avoided, and when the diet is restricted for any reason the giving of glucose solution is indicated. The work of Mills, Bancroft, and Stanley Brown have demonstrated an increased coagulability of the blood following a high protein diet, while a diet adequate in carbohydrates and fat was not followed by such an effect. It thus seems advisable to place all patients on a low protein diet for the first two weeks following operations within the abdomen or pelvis, in cases of trauma with much tissue mutilation and in cases of phlebitis at all times. Care should be taken to avoid chilling of the patient, before, during, and after operation. The legs and feet must be kept warm, and the local use of heat may be indicated.

Atraumatic surgery is the ideal toward which all surgeons strive. Hemorrhage and shock have a profound influence on venous stasis. The patient's position on the operating table should be made as comfortable as possible, avoiding pressure anywhere which might promote venous stasis, especially in the legs. Harsh and prolonged retraction should not be used and injury to the deep epigastric veins is to be avoided, as thrombosis may start in these vessels. It is better to ligate and divide than to injure veins by puncture, bruise-



ing, or overstretching. Mass ligatures are to be avoided, and sutures penetrating veins should be removed and reapplied. Septic wounds should be thoroughly drained to avoid the spread and absorption of septic products.

#### POSTOPERATIVE MEASURES

During the postoperative stage nothing should be done which promotes venous stasis, such as use of tight abdominal dressings and binders. When gas distention takes place a binder may become too tight. Due to vomiting and diaphoresis the body fluids may become greatly depleted, which necessitates the use of transfusion of blood, salt and glucose solution. Frequent moving and turning of the patient is indicated. The pain produced by the incision may inhibit the normal respiratory excursion; therefore, encourage deep breathing, as the diaphragm is a circulatory as well as a respiratory organ. The inhalation of carbon dioxide at intervals may be indicated. Moderate elevation of the foot of the bed, provided there are no contraindications, during the first twenty-four hours after operation, when activity is at a minimum, might act as a prophylactic measure favoring return venous flow. It is important to frequently check the blood pressure in order to determine whether the pressure normal for the patient is being maintained. Methods to increase body metabolism may be indicated. Doctor Walters gives two grains of desiccated thyroid gland extract three times a day in all cases except those with increased pulse rate and temperature. The medication is begun two to four days after operation and continued until usually the tenth day. If the pulse and temperature are increased, the use of thyroid extract is discontinued. In the series in which thyroid extract was used the incidence of embolism was reduced to .09 per cent. However, all other known methods of improving the circulation were also instituted. As an effective means in reducing the incidence of thrombosis and embolism some surgeons favor early mobilization of surgical patients. Other surgeons believe that this is done at the expense of wound repair. The adoption of systematic light active and passive exercises provides almost all the advantages gained by a shortened stay in bed without interfering with wound repair. These exercises stimulate peripheral circulation, and add much to the comfort and strength of the patient. Meticulous attention to details and close observation that they are carried out is essential.

When thrombosis of the veins of the legs does occur, statistics show that the results are not frequently fatal. Every case must be decided on its own merits. Thrombosis should be suspected when a low elevation of temperature in a clean surgical case takes place, with increased pulse rate with pain in leg or foot, and with increased size of leg as determined by a tape measure. The greatest possible caution is called for to prevent dislodging emboli. This necessitates the gentlest possible

handling during nursing care, particularly during the bath and in the use of the bed pan. The leg should be kept elevated on a pillow to keep it warm, and to avoid pressure of the bed clothes. Whatever seemed necessary in the prevention of thrombosis is now reversed for the prevention of embolism. The guiding principle is rest until the thrombus has been anchored by organization. Occurrence of pleuritic pains in the postoperative period should be considered the result of infarction and not a "dry pleurisy," and proper precautions should be instituted.

#### IN CONCLUSION

The important thing is to recognize the possibility, and even probability, of the development of thrombosis or embolism, and to endeavor to find some practical method for actively combating their development. To recognize a complication at an early stage makes treatment more effective.

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#### DISCUSSION

E. VINCENT ASKEY, M.D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Breyer has summed up very capably the problem which confronts us. He has called to our attention work which has been done on this subject. He has adequately discussed those factors involved in the physical forces predisposing to thrombosis, namely, trauma, infection, stasis or slowing of the circulation, and dehydration.

However, if I understood him correctly, he stated that changes in blood composition cannot be measured readily and that these elements probably play no part in the initiation of a thrombus, but only with the propagation of a thrombus already started. This, I think, is not strictly so, and we differ in this opinion. There have been methods suggested to warn us of impending thrombosis and definite treatments proposed to combat it.

It is probable that in the future more attention will be paid to the biochemical changes found in the blood itself in thrombosis and embolism.

Bancroft and Stanley-Brown have suggested an index of clotting potentiality. This index can be determined in any well-equipped hospital laboratory. They believe it is of as great value in denoting impending thrombosis as is a leukocyte count in an infection. In cases showing a high index of clotting potentiality they advise the repeated use of 10 per cent solution of sodium thiosulphate intravenously. They believe their results show definite value. The effectiveness of the sodium thiosulphate they explain as follows:

In the body tissues there is an oxidation enzyme called glutathione—a sulphur compound. Its action is to lessen the development of lactic acid. Lactic acid results from injury to tissues. Sodium thiosulphate supplies sulphur, which increases the content of glutathione either by neutralization of the lactic acid or by the formation of new glutathione.

Howell has prepared, from dogs' livers, an anticoagulant called Heparin and has used it in thrombosis cases with good results. Rowntree, however, warns us that as yet preparations available are not pure enough to be used without danger.

Recently De Takats has called attention to the marked amelioration of symptoms in cases of frank embolism by the use of papaverine. This drug relieves surrounding vasoconstriction and spasm, and encourages early collateral circulation.

The problem is as yet unsolved. Thrombosis and embolism as postoperative complications constitute a fearsome tragedy in the practice of any surgeon.



WILLARD J. STONE, M.D. (65 North Madison Avenue, Pasadena).—Every physician who has witnessed the sudden and, in many instances, unexpected death of a patient from pulmonary embolism during convalescence from a surgical operation, will appreciate Doctor Breyer's thoughtful review of the methods which may be used to prevent such a tragic accident.

From the medical standpoint, the circulatory condition of obese patients with slow heart rates and subnormal metabolism may be improved by the administration of thyroid extract during the first ten days of convalescence. Likewise the administration of glycocholl, for its general stimulating action on metabolism, leading to improved circulatory efficiency, may be helpful. The routine use of digitalis during convalescence whenever the heart rate is increased as a result of surgical shock, is difficult to justify from a pharmacologic standpoint. Its use should be limited, as Doctor Breyer has emphasized, to the treatment of auricular brillation and cardiac decompensation. With other forms of cardiac insufficiency, especially if the heart rate is slowed, the administration of theobromin or theophyllin salts may be beneficial. Strychnin as a circulatory tonic has gradually become less popular because of the insufficient dosage commonly employed. For patients with slow heart rates who may be believed to be unusually susceptible to thrombotic tendencies, the dosage should approximate one-tenth grain four times daily.

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H. BRODIE STEPHENS, M.D. (384 Post Street, San Francisco).—Doctor Breyer has presented an excellent review of the distressing complication of postoperative thrombosis and embolism. The author in his review rightly emphasizes the frequency of this complication and, because of its frequency, a discussion of the subject is timely.

A careful study and adherence to the principles laid down by Doctor Breyer will undoubtedly frequently prevent this complication; or, if thrombosis does occur, its seriousness will be lessened by adopting the general principles set up by the author.

Notwithstanding the thoroughness of this paper, all will agree, I believe, that there will be still many cases of postoperative thrombosis and even embolism, in spite of whatever we do before or after operation. It appears to me that we have far from solved the problem, and much experimentation and clinical investigation are still needed, if we are to thoroughly understand and prevent this complication so far as it concerns the surgical patient.

Pulmonary embolism has been satisfactorily handled by immediate operation, but it requires a well-trained house staff and a sterile set-up for such an emergency. We have felt this to be a worthwhile routine, and the house staffs are each year given instruction in how to handle this emergency.

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DOCTOR BREYER (Closing).—I appreciate the suggestions made by the discussers and the emphasis placed on certain phases of the subject, which I could not stress due to the shortness of the paper. The underlying surgical principle of the recommended exercises in the prevention of thrombosis is the effect of muscle action on the venous circulation. We all have made use of this principle, when we ask the donor for a blood transfusion, to open and shut his hand after the trochar needle has been inserted in the median basilic vein.

Dr. Alvin G. Foord, pathologist at our Huntington Memorial Hospital, has stated to me that when the autopsy surgeon of the pathologic service of Dr. Julius Erdheim of Vienna failed to find the source of the pulmonary embolism, Doctor Erdheim would ask if the veins of the calves of the legs had been dissected out and explored. Very often when this was done, the origin of the embolus was found to be there.

Exercises that will cause tensing of the flexors and extensors of the foot, and of the tensor femoris muscle, will produce the desired effect.

## WHOOPIING COUGH: ITS PROPHYLAXIS AND TREATMENT\*

By J. M. FRAWLEY, M.D.  
Fresno

DISCUSSION by A. J. Scott, M.D., Los Angeles; Francis Scott Smyth, M.D., San Francisco; Charlotte Singer Brooks, M.D., San Francisco; Edward B. Shaw, M.D., San Francisco.

A PROGRAM directed toward the control of whooping cough has been carried on since 1932 in the public schools of Fresno. Two methods have been employed, viz., isolation and vaccination.

### ISOLATION

In order to be of benefit as a factor in controlling the spread of whooping cough in the classroom, isolation has to begin at the onset of the cough. This is possible only when the cough-plate method<sup>1</sup> is used to detect early cases.

At the outset of this study, cough plates were made for us by Doctor Krueger at the bacteriological department of the University of California in Berkeley. They were always received in perfect condition, and the exposed plates were returned by mail after incubating overnight. During one school season they were sent to us by Doctor Kellogg from the State Department of Public Health Laboratories in Berkeley, but two years ago a cough-plate station was organized at the Fresno County Hospital, and the plates have been made and read there. They are prepared according to a method recommended by J. J. Miller.

### TECHNIQUE

The technique is described in detail by Kendrick, Miller, and Lawson<sup>2</sup> in the American Public Health Association Year Book for 1935-1936:

A modification of Bordet and Gengou's potato blood agar is made as follows:

Base:

Peeled sliced potatoes, 500 gm.

Glycerin, U. S. P., 40 cc.

Distilled water, 1,000 cc.

Boil the potatoes in glycerin and water until soft. Make up to volume, strain through gauze and allow to stand for sedimentation. Siphon off the supernatant liquid.

To 500 cubic centimeters of clear potato extract add:

Sodium chlorid solution, 0.75 per cent, 1,500 cc.

Agar, Bacto, 60 gm.

Proteose Peptone, 20 gm.

Let stand for fifteen minutes, to saturate the agar. Heat until the agar is dissolved, and dispense in amounts convenient for storage. Autoclave for twenty-five minutes at fifteen pounds pressure (120 degrees centigrade). This base may be stored indefinitely.

Finished medium—To the melted base, at 45 degrees centigrade, add blood to make a final concentration of at least 15 per cent. The blood should be used when fresh, never more than seventy-two hours after it has been obtained. It may be from sheep, horse, or human source, but avoidance of horse blood for the vaccine medium is recommended. Mix the blood with the base by whirling, and pour into plates—about 15 cubic centimeters per Petri plate. Either glass plates or metal boxes may be used.

The potato extract-glycerin-agar base is kept stored in the ice-box, and sufficient Petri plates for a week's supply are made up by adding blood

\* Read before the Pediatric Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

obtained from hypertension cases or from human placentas. The plates are kept in the ice-box until needed.

The detection of early cases rests with the school nurse. She must be on the lookout for suspects among the children, who are referred to her each morning by the teachers, and should take cough-plate cultures in all cases where there is any cough, especially in the case of children who are known to have been exposed to whooping cough.

The plate is uncovered and held five or six inches from the child's mouth. Gentle pressure over the trachea just below the larynx will elicit coughing, and after several good expulsive coughs the plate is covered and taken immediately to the incubator. In positive plates the characteristic tiny colorless hemispherical colonies appear, surrounded by a zone of hemolysis. The organisms are described as follows:<sup>2</sup>

Stained by Gram's method, *B. pertussis* decolorizes readily—much more readily, in fact, than does *H. influenzae*. Viewed microscopically, the small, faintly stained coccoid bacilli are scattered evenly throughout the film, occurring singly for the most part, seldom in chains of even two, and not found as pleomorphic threads. Frequently they show bipolar staining.

It takes forty-eight to seventy-two hours for the colonies to develop, and during that time a clinically suspicious case, or one with a history of exposure, must be treated as if positive. It is essential for the school nurse to have not only the coöperation of the teachers, but she must also have the good will of the practicing physician in the community. We have had splendid coöperation on the part of the physicians, and are occasionally called on to furnish cough plates to physicians for use in their private cases.

#### HOW STATE SUBSIDY FOR SCHOOL ATTENDANCE WORKS OUT

One of the chief obstacles to excluding children with incipient whooping cough lies in the system of granting state aid to schools, based on average daily attendance. Recently a school in Fresno County was closed down completely for a month. So many children were absent with whooping cough that the trustees decided it would be better to close the school than to allow the attendance to fall below a certain level. By keeping the school open with the decreased attendance they would have lost \$1,200 of next year's state grant.

This program of early isolation is not new. In Denmark, children are excluded from school during the early catarrhal stage, and allowed to return after the paroxysmal stage has been well established after the cough plates are consistently negative.

Besides the use of cough plates for diagnosis, a second measure which has been tried out in the Fresno public schools, has been prophylactic vaccination of kindergarten children. The opportunity is offered to each new class, and the vaccine given on the written request of the parent.

#### VACCINATION

The attitude toward vaccine as a prophylactic and therapeutic agent in whooping cough has

undergone a radical change within the past few years. The year 1931 seems to have been the turning point. In that year Leslie and Gardner<sup>3</sup> published in the *Journal of Hygiene* their classical study on the phases of hemophilus pertussis. Previously, most of the vaccines used were entirely innocent of antigenic principle.<sup>4</sup>

However, in looking back over the earlier period, the work of Madsen<sup>5</sup> and his coworkers at the Danish Serum Institute stands out as peculiarly in line with the later idea.

Greatly renewed interest in whooping cough research followed the appearance of Leslie and Gardner's work.

Sauer,<sup>6</sup> in 1933, published his successful results of prophylactic vaccination using very large doses of unwashed Phase I organisms grown on human blood enriched by Bordet medium. He has taken the stand that vaccination is effective only when given as a preventive, and not as a curative measure. In his latest review<sup>7</sup> of his own cases, published in the *American Journal of Public Health*, November, 1935, he says:

*Bacillus pertussis* vaccine, like typhoid vaccine, is an immunizing, not a curative, agent. A time interval of several months is required for immunization to be complete. About 10 per cent of the children injected with a total of 8 cubic centimeters of the approved commercial vaccine contracted pertussis when subsequently exposed to infection.

Doctor Park,<sup>8</sup> at the meeting of the American Academy of Pediatrics in June, 1935, reported the result of an extensive investigation into the value of prophylactic vaccination carried out by the New York City Health Department with Mishulow's vaccine. This vaccine is made from Phase I organisms grown on sheep's blood agar, with one per cent of sheep-serum broth added on the surface of the medium after inoculation. Vaccines grown in this manner contain, in addition to the pertussis bacilli, a toxic substance which increases the stimulation of agglutinins. Doctor Park concluded that

The efficacy of pertussis prophylactic vaccination appears to depend primarily upon sufficient dosage.

A group of thirty-eight children were given seventy-seven to eighty-eight billion of the N. Y. C. Vaccine. Five of these were exposed to active cases, and none developed pertussis. Another group of 148 children were given thirty to seventy-five billion of the same vaccine; sixteen of them were exposed and nine developed pertussis, but four of these nine had no whoop, did not vomit, and the cough lasted only two or three weeks. They were so atypical that they could not have been diagnosed as cases of pertussis if they had not been definitely exposed. As the dosage decreased, the incidence became higher.

Kendrick and Eldering<sup>9</sup> in January, 1936, reviewed the work on the prophylaxis of whooping cough being carried on by the Michigan Department of Health. Doctor Kendrick has used a vaccine which is a once-washed ten thousand million per cubic centimeter suspension of *B. pertussis*, Phase I of Leslie and Gardner, grown on Bordet-Gengou medium enriched with 15 per cent sheep's blood. The organisms are killed with merthiolate 1:10,000 or phenol 0.5 per cent allowed to act at cold-room temperature for a week or more.

A total dosage of 7 cubic centimeters is given, divided into four doses. Out of a large number of vaccinated children, follow-up work has indi-

TABLE 1.—Summary of Prophylactic Vaccination With Krueger's Pertussis U. B. A. (Commercial)

Dosage	Number of Children Vaccinated	Exposures	Developed Whooping Cough	Percentage of Failures
8.0 cc.	505	Home ..... 20 School ..... 68 Total ..... 98	Mild ..... 33 Moderate ..... 6 Severe ..... 4 Total ..... 43	44.0%
12.0 cc.	113	Home ..... 9 School ..... 12 Total ..... 21	Mild ..... 6 Moderate ..... 1 Severe ..... 3 Total ..... 10	47.6%

cated that of ninety-five who were subsequently exposed, thirteen (13.6 per cent) developed whooping cough. Of these, nine cases (9.2 per cent) were light or very light.

In an unvaccinated control group there were 128 exposures with 98 (88.2 per cent) cases of whooping cough. Of the ninety-eight cases, nineteen, or 19.3 per cent, were light or very light.

To review, briefly, the Michigan Department of Health reports that, after vaccination, 13.6 per cent of exposed children have developed whooping cough, while Sauer reports about 10 per cent of exposures among his vaccinated cases have developed whooping cough.

#### FRESNO PROCEDURE

In the vaccination program at Fresno, Krueger's Pertussis U. B. A.<sup>10</sup> has been used. This vaccine\* is a solution of endocellular antigen extracted from washed Phase I H. pertussis organisms by mechanical disruption and ultrafiltration.

By this method of preparation, including the thorough washing of the bacterial cells, the toxic filtrate which gives the reaction of Schwartzmann has been discarded with the washings. In a personal communication Doctor Krueger says that:

Bacterial filtrates have long been known to contain antigenic fractions and to be capable of inducing toxic reactions under certain conditions. It is also true that broth filtrates regularly contain nonspecific and irritating metabolites. I feel that one might well sacrifice some of the antigenic fraction present in the filtrate, in order to avoid nonspecific reactions. That the specific antigen resides in the cell itself is evidenced by the work of Miller, Browne, and McCrea,<sup>11</sup> who showed that the U. B. A. produces complement-fixing antibodies against H. pertussis when injected into rabbits. Similarly, complement-fixing antibodies were produced in children as well as agglutinins and precipitins in some instances, and by Miller and Browne,<sup>12</sup> who were successful in sensitizing guinea pigs with Phase I H. pertussis cultures, so that the classical Schultz-Dale reaction was obtained with pertussis U. B. A.

The first clinical reports<sup>13</sup> published on pertussis undenatured bacterial antigen were promising. The antigen solution used was prepared in Doctor Krueger's laboratory, and the organisms used were recently isolated during a current epidemic and were grown on media enriched with human blood. The commercial product has been modified to some extent, in so far as sheep's blood is used in the culture medium.

This commercial product has been used in a sufficiently large number of cases to justify an evaluation at this time. It has been used as a prophylactic agent before exposure, in prophylaxis after exposure, and therapeutically after coughing has begun.

#### PROPHYLAXIS BEFORE EXPOSURE

During the last two school years Pertussis U. B. A.\* was given as a prophylactic agent before exposure to two groups totaling 618 children. Some 505 children received 8 cubic centimeters, 113 received 12 cubic centimeters. Children in these groups who were subsequently exposed contracted whooping cough in a high percentage of cases, as shown in Table 1.

It must be concluded that in the dosage used, H. Pertussis U. B. A. failed to protect a sufficient percentage. However, as Doctor Park has pointed out, the efficacy of prophylactic vaccination depends primarily on sufficient dosage. The present commercial material contains only 10 milligrams of protein nitrogen per 100 cubic centimeters of antigen solution. It remains to be seen whether protection can be offered when adequate dosage is employed. In order to achieve this result, some means may have to be found of supplying the material in far greater protein nitrogen concentration.

#### PROPHYLAXIS AFTER EXPOSURE

The published reports on the use of Pertussis U. B. A. as a prophylactic agent after exposure have been summarized by J. J. Miller in a report on H. Pertussis U. B. A. (Krueger) given before the Laboratory Section of the American Public Health Association at Milwaukee, October, 1935. The vaccine he reported was used during the incubation period in ninety-eight cases; 50 per cent developed a cough which, in most cases, was mild or atypical.

This attack rate of 50 per cent of exposures compares favorably with an attack rate of 76.5 per cent of exposures in a group of unvaccinated children observed by Kendrick.<sup>11</sup>

It would seem from the published reports that considerable benefit followed the administration of Pertussis U. B. A. during the period of incubation. The chief objection to its use lies in the large number of daily injections that are required.

#### THE USE OF PERTUSSIS U. B. A. IN TREATMENT

The use of vaccine in the treatment of whooping cough is based on the fact that the disease is one of prolonged duration, usually taking six to eight weeks for immunity to develop. In such a slowly progressing infection it is rational to attempt to hasten the development of immunity by artificial stimulation of antibody formation.

\* The vaccine was furnished by the Eli Lilly Company.

TABLE 2.—Summary of Treatment With Krueger's Pertussis U. B. A. (Commercial)

Case Age	Treatment Began	Duration Treatment in Days	Dosage	Duration of Symptoms After Treatment Began
1 H. W. 2 years	Five days before onset of symptoms	7	57 cc.	Mild cough for one week.
2 B. K. 8 weeks	Three days before onset of symptoms	8	12 cc.	Severe coughing for one week.
3 B. B. 6 years	Two days before onset of symptoms	8	60 cc.	Mild atypical cough for eight days.
4 B. B. 13 months	Two days before onset of symptoms	13	85 cc.	Mild cough for two weeks. Whooped for three days.
5 S. H. 3 years	Coughing two days	10	27 cc.	Whooped very little for one week.
6 R. W. 2½ years	Coughing two days	6	60 cc.	Mild atypical cough for one week.
7 M. B. 3½ years	Coughing two days	4	20 cc.	Coughed for four days. Six days later took cold; whooped and vomited three days.
8 D. A. 17 months	Coughing two days	5	47 cc.	Mild cough for one week.
9 R. H. 18 months	Coughing two days	5	40 cc.	Cough lasted for three days. Whooped three times.
10 D. R. 2 years	Coughing three days	7	57 cc.	Coughed for one week.
11 C. S. 5 years	Coughing three days	7	33 cc.	Coughed for nine days. Whooped four days, vomited once.
12 B. A. 6 years	Coughing five days	6	48 cc.	Coughed for eight days. Whooped four days, vomited once.
13 C. A. 3½ years	Coughing five days	7	53 cc.	Coughed for eleven days. Whooped five days.
14 E. H. 2½ years	Coughing six days Whooping and vomiting one day	4	33 cc.	Coughed five days. Whooped and vomited three days.
15 B. P. 10 months	Coughing one week	5	10 cc.	Coughed four days.
16 T. F. 20 months	Coughing one week	9	43 cc.	Coughed ten days. Whooped and vomited three days.
17 L. H. 6 years	Coughing eight days	10	48 cc.	Coughed for twelve days. Whooped two days.
18 D. B. 3½ years	Coughing eight days Whooping two days	17	122 cc.	Coughed three weeks. Whooped and vomited severe eighteen days.
19 H. C. 2 months	Coughing ten days	9	14 cc.	Coughed for nine days.
20 A. J. 3 years	Coughing ten days Vomiting three days	11	40 cc.	Twelve days more of whooping and vomiting.
21 A. J. 7½ years	Coughing ten days Vomited once	6	23 cc.	Coughed for six days. Whooped two days.
22 M. H. 4½ years	Coughing ten days	7	53 cc.	Coughed for seven days. Whooped three days.
23 G. E. 8 years	Coughing eleven days	7	60 cc.	Coughed for seven days. Whooped two days.
24 G. E. 5 years	Coughing eleven days	7	60 cc.	Coughed for seven days.
25 P. L. 5 months	Coughing eleven days.	6	28 cc.	Coughed for five days. Two weeks later took cold, whooped and vomited three nights.
26 J. B. Adult	Coughing thirteen days.	5	36 cc.	Coughed for six days. Whooped and vomited for two days.
27 B. H. 1 year	Coughing thirteen days.	9	41 cc.	Coughed for thirteen days. Whooped five days, vomited one day.
28 R. Z. 3½ years	Coughing two weeks Whooping and vomiting four days	5	25 cc.	Coughed for six days. Whooped three days, vomited two days.
29 D. B. 10 months	Coughing two weeks Whooping and vomiting three days	9	68 cc.	Coughed for ten days. Whooped four days.
30 A. S. 3 years	Coughing two weeks	7	29 cc.	Coughed for nine days. Whooped five days, vomited four days.

(Continued on next page)



TABLE 2.—Summary of Treatment With Krueger's U. B. A. (Commercial) (Continued)

31 N. A. 3 years	Coughing two weeks Whooping and vomiting two days	11	78 cc.	Eleventh day of treatment stopped vaccine because of reaction. Whooping and vomiting for seventeen days.
Case Age	Treatment Began	Duration Treatment in Days	Dosage	Duration of Symptoms After Treatment Begun
32 S. P. 3 years	Coughing two weeks	5	14 cc.	Coughed for nine days.
33 F. G. 3½ years	Coughing two weeks Whooping and vomiting two days	5	19 cc.	Coughed one week. Whooped and vomited three days.
34 J. C. 6 years	Whooping and vomiting for two weeks	18	54 cc.	Coughed for three weeks. Whooped and vomited fourteen days.
35 J. W. 5 years	Coughing eighteen days Whooping ten days	8	80 cc.	Coughed for nine days. Whooped for seven days.
36 P. Mc. 18 months	Coughing eighteen days Severe whooping and vomiting three days	9	43 cc.	Coughed for ten days Whooped and vomited six days.
37 D. Mc. 4 years	Coughing three weeks Severe whooping and vomiting	10	68 cc.	Coughed, whooped and vomited for ten days more.
38 B. W. 2 years	Coughing three weeks Severe whooping and vomiting one week	5	25 cc.	Coughed for six days. Whooped and vomited three days.
39 T. P. 5 years	Severe coughing six weeks, whooping and vomiting two weeks	5	23 cc.	Stopped whooping and vomiting in five days.

The logical agent to bring about this objective would be a lysed vaccine. In such a vaccine there is a minimum of alteration of the antigenic properties, and the antibody stimulation begins at once without any preliminary period being required for the liberation of the antigen by bacteriolysis. Krueger's pertussis antigen is a vaccine of this type and, theoretically, meets all requirements. In practical use it has received considerable favorable attention.

To a recent questionnaire, replies were received from 162 pediatricians who had used Pertussis U. B. A. in the treatment of over 3,700 cases of whooping cough, and 104 (63 per cent) reported favorably.

However, in these cases no controls were used; and in a disease so variable in duration and severity as whooping cough, adequate controls, while difficult to obtain, are necessary.

Recently, I have had the opportunity to use the antigen in treatment in a small series of approximately forty cases, using as controls an equal number of cases observed simultaneously in the same schoolrooms, although obviously not from the same families. Large doses were given subcutaneously, 5 cubic centimeters daily or twice daily to children over one year of age, 2 to 5 cubic centimeters to children less than one year. Daily records were kept in both series on the number of coughing spells each night, the number of vomiting attacks, etc.

#### CONCLUSIONS

While this series is too small to form the basis of any definite conclusions, nevertheless it would seem that, in some cases at least, a modifying influence was exerted. The average duration of coughing for all children receiving daily vaccine injections was 2.7 weeks, with an average parox-

ysmal stage of 1.2 weeks. In the control group, the average duration of coughing was 6.5 weeks, with whooping and vomiting for 2.7 weeks.

The best results were obtained when injections were begun either during the incubation period or on the first day or two of coughing, or else in the late stages after the disease had passed its peak. There was no certainty about the influence which could be expected when injections were begun during the height of the infection.

#### SUMMARY

1. Krueger's Pertussis undenatured bacterial antigen (commercial) was used as a prophylactic agent in two groups of children, totaling 618. Protection against whooping cough was found to be insufficient to justify its use in prophylaxis before exposure.

2. In prophylaxis after exposure, and in treatment of early cases of whooping cough, modification of the expected course of the infection followed the administration of large daily doses of antigen. The average duration of coughing in thirty-nine children given injections was 2.7 weeks, with a paroxysmal stage of 1.2 weeks; in an equal number of controls the average duration of coughing was 6.5 weeks, with a paroxysmal stage of 2.7 weeks.

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#### REFERENCES

- Chievitz, L., and Mayer, A. H.: Further Investigations on Whooping Cough, *Ann. Inst. Pasteur*, 30:503, 1916.
- Kendrick, P., Miller, J. J., and Lawson, G. M.: Tentative Methods for the Bacteriological Diagnosis and Control of Whooping Cough, *Am. Pub. H. Assn. Year Book*, 1935-1936.
- Leslie, P. H., and Gardner, A. D.: The Phases of *Haemophilus Pertussis*, *J. Hyg.*, 31:423, 1931.

4. Gardner, A. D., and Leslie, P. H.: Early Diagnosis of Whooping Cough, *Lancet*, 1:9, 1932.
5. Madsen, T.: Boston M. and S. J., 192:50, 1924.
6. Sauer, L.: Immunization with *Bacillus Pertussis* Vaccine, *J. A. M. A.*, 100:239, 1933.
7. Sauer, L.: The Known and Unknown of *Bacillus Pertussis* Vaccine, *Am. J. Pub. Health*, 25:1226, 1935.
8. Park, W. H.: Round-Table Discussion on Whooping Cough, *J. Pediat.*, 7:690, 1935.
9. Kendrick, P., and Eldering, G.: Progress Report on Pertussis Immunization, *Am. J. Pub. Health*, 26:8, 1936.
10. Krueger, A. P., Nichols, V. C., and Frawley, J. M.: Preparation of an Active Undenatured Antigen from *Hemophilus Pertussis*, *Proc. Soc. Exper. Biol. and Med.*, 30:1097, 1933.
11. Miller, J. J., Browne, A. S., and McCrea, N.: Experimental Hypersensitivity to Undenatured H. *Pertussis* Protein, *Proc. Soc. Exper. Biol. and Med.*, 32:229, 1934.
12. Miller, J. J., and Browne, A. S.: Antibody Response to H. *Pertussis* Undenatured Bacterial Antigen. *Proc. Soc. Exper. Biol. and Med.*, 32:449, 1934.
13. Frawley, J. M., Stallings, M., and Nichols, V. C.: A New Pertussis Antigen: Preliminary Clinical Report, *J. Pediat.*, 4:179, 1934. Frawley, J. M.: The Immunization of School Children Against Whooping Cough, *J. Pediat.*, 4:184, 1934. Frawley, J. M.: The Immunization of School Children Against Whooping Cough, *J. A. M. A.*, 103:960, 1934. Munns, G. F., and Aldrich, C. A.: *Hemophilus Pertussis* Endoantigen (Krueger), *J. Pediat.*, 5:590, 1934.

#### DISCUSSION

A. J. SCOTT, M.D. (1401 South Hope Street, Los Angeles).—The use of the Krueger U. B. A. pertussis for prophylaxis is still too new to permit the passing of a positive judgment upon it. This preparation for treatment is apparently not satisfactory because of the large doses, the high cost, and the frequency of doses.

The cough plate method of diagnosis is the most satisfactory, but the technical difficulties of preparation and plate distribution must be overcome before it can be used universally in our private or clinic practice.

Our experience with U. B. A. pertussis is very limited. In the few cases where we have used it for prophylaxis, we have not had any pertussis. We have used it for only two years, and this is too short a time to prove anything. In treatment we have been disappointed, probably because we did not use the large doses Doctor Frawley has used.

In an experience of ten years, from 1925 to 1935, we took 155 cases of pertussis from our personal files. These had no prophylaxis and were diagnosed by blood counts and clinically. We treated them with a stock pertussis vaccine of 7,500 million per cubic centimeter, giving one-half to one and one-half cubic centimeters every other day for three doses. In addition, we used quartz lights and, occasionally, codein. The average amount of vaccine used in 128 cases was 3.78 cubic centimeters per child. The average number of weeks of coughing was 2.36, and the average number of visits was 6.89.

In the California Babies' Hospital, for the same period, we had 2,569 cases. There we averaged 1.75 cubic centimeters of vaccine per child, and the mothers reported improvement in 70 per cent of cases.

We appreciate that pertussis is a variable disease, some years being more severe than in others; also, unless controls are used, as Doctor Frawley says, we can really prove very little. However, we feel that we have had as good results with big doses of stock concentrated pertussis vaccine as have been reported with the more expensive U. B. A. pertussis.

Theoretically, the U. B. A. pertussis is the proper vaccine to use if we are going to use a vaccine. But time and experience will prove whether it is as valuable as the stock H. *pertussis* vaccine, Phase I, of our reliable biological laboratories. I hope Doctor Frawley is encouraged enough to continue this work, and to report again what progress he is making.

FRANCIS SCOTT SMYTH, M.D. (University of California Hospital, San Francisco).—The Pediatric Department of the University of California has been intensely interested

in the study of whooping cough. We have learned that it is a more variable disease in its symptomatology than was previously stressed, and were it not for the cough plate many cases, both in adults and children, would go unrecognized. The variability in individual susceptibility, as well as the variation in virulence of the organism, complicate the statistical study of the disease and its prophylaxis. Dr. John J. Miller, Jr., and Dr. Charlotte Singer Brooks have very carefully observed their group of children with sibling control. This method is, of course, more accurate than control cases selected at random. While our earlier studies with U. B. A. were more encouraging, we are not so impressed with the results in this intimate group.



CHARLOTTE SINGER BROOKS, M.D. (University of California Hospital, San Francisco).—Doctor Frawley's effort to control whooping cough among school children by the use of the cough plate is very commendable. From the viewpoint of practical epidemiology, the cough plate finds its greatest utility in detecting the early case of whooping cough.

We have been using both U. B. A. and Phase 1 pertussis vaccine in a well-controlled group of children in our pertussis immunization study in San Francisco. The status of Phase 1 H. *pertussis* vaccine in this group is still an open question. We have not had sufficient exposures among these children to be able to draw conclusions at this time. The incidence of pertussis in our U. B. A. immunized children and control children who have been adequately exposed to the disease has been 100 per cent. The cases of pertussis were of all grades of severity. I believe the criteria of adequate exposure need to be stressed before concluding that immunization is efficacious. Indirect exposure to an early case, or direct exposure to a child late in the paroxysmal stage, may not mean exposure to living H. *pertussis* bacilli. It is well known that positive cough plates are obtained with difficulty, and often not at all late in the disease. Not until definite standards or criteria of exposure are used, and the status of natural immunity is determined, can conclusions be drawn as to protection of immunized children.

I regret that our experience with U. B. A. in treatment of pertussis cases, well controlled, has been most discouraging. We are not able to confirm Doctor Frawley's splendid results, nor those of Stallings and Nichols, with this agent. The disease in our treated cases was of practically the same duration and severity as in our control cases, regardless of the stage of the disease at which the treatment was instituted. Details of our experience with the therapeutic value of U. B. A. in the treatment of pertussis are to be published shortly.

It is well known that commercial U. B. A. endo-antigen contains very small amounts of protein nitrogen and that there is a variation of the amount in each lot. The lyophil process might serve to concentrate this antigen and standardize its nitrogen content. A study of the therapeutic value of a standardized concentrated U. B. A. antigen would be of scientific interest. However, the results of our experience with the present expensive commercial product make it doubtful whether the additional expense of such concentration and standardization is warranted.



EDWARD B. SHAW, M.D. (384 Post Street, San Francisco).—Doctor Frawley has detailed a method for the early recognition and subsequent isolation of whooping cough cases which is perfectly feasible, but which can be accomplished only by means of painstaking care and close cooperation between school authorities, parents, children, school nurses, and physicians. The severity of the disease entirely justifies the labor involved. It should be pointed out, however, that although whooping cough is hardly more than an annoying problem among school children, it is a much more serious one in the home among children below school age, especially infants, and methods of control in the home are of far greater importance than those for the schoolroom.

When one member of a family develops recognizable whooping cough, other members of the family have almost inevitably been exposed and will usually develop the dis-

ease in the absence of immunity. Parents and physicians frequently lose sight of the fact that it is worth while to endeavor in every way to diminish the *intimacy of exposure* of well children to those affected with the disease. Cases which develop from intimate exposure (secondary cases in the family) are commonly more severe than is the original. Even though absolute isolation cannot be maintained in the home, every effort should be made at segregation of the ill child, thus reducing the exposure dosage to which other members of the family, frequently smaller children, are subjected.

I am in agreement with the moderation of the author's viewpoint concerning prophylactic and therapeutic use of vaccine. The prophylactic use of vaccine seems commonly to have been accepted with an enthusiasm scarcely justified by the available data. There is no question as to the extreme desirability of a method for immunization, and there seems to be little reason to fear dangerous effects of the vaccine, although the repeated injection of large amounts of the preparation is somewhat of an unpleasant ordeal for little children. The degree and duration of the protection so conferred is, however, most difficult of precise evaluation. There is no simple test for immunity. There is no evidence to suggest that the immunity will be enhanced and maintained by a natural method of immunization. The duration and effectiveness of immunity can be determined only by prolonged observation of the response to natural exposure among large groups of vaccinated and unvaccinated children. There are many variable factors which are most difficult to control. The accumulation of adequate data will not quickly be accomplished, and the widespread employment of active immunization, except on an experimental basis, should be deferred until the questions involved can be answered with authority.

#### PRACTICAL QUANTITATIVE PERIMETRY\*

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DISCUSSION by George L. Kilgore, M.D., San Diego;  
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THERE have been many definitions of the field of vision. Some of them are very ingenious in their method of clarifying a difficult subject, but many of them, although technically correct, are clinically worthless.

By far the most lucid and understandable of these definitions, and the one which best explains and illustrates the problems of modern quantitative perimetry, is that of Traquair.<sup>1</sup> In this definition, the field is imagined as an island of vision surrounded by a sea of blindness.

The island is oval in shape and the coast line rises steeply, as cliffs, vertical on one side and sharply sloping on the other. Above the cliffs is a sloping plateau which rises more rapidly again toward the somewhat eccentrically situated and sharp summit. To one side of this point is a pit (the blind spot) extending down to the level of the surrounding sea.

To an observer situated in the air, above the pinnacle of the summit, a panoramic view of the whole island is presented. Now, conceive of the surface of such a hill as not stationary but subject to slight fluctuations in height, distortion or partial destruction with depressions of every variety occurring on its surface, of all sizes, shapes

and depths, and we have a picture of the normal and pathologic field of vision.

#### CHARTED PERIMETRIC FIELD A CONTOUR MAP

Modern quantitative perimetry is a true *survey* of this hill with all its different levels, dips, and depressions shown by contour lines. Thus, the perimetric field, as charted, is a contour map. It is no longer sufficient merely to outline the coast of this island or very deep depressions in its surface. On the contrary, it is the shallow, barely perceptible indentations which give us the earliest and most valuable information.

In spite of the seemingly complicated nature of this type of examination of the field of vision, it requires in reality only the utilization of a few simple principles and the simplest and most inexpensive equipment. It is, therefore, eminently practical and of the greatest value for routine use in the office of the busy practitioner.

#### PERIMETRY METHODS

Surprising as it may seem, almost half a century was allowed to elapse after Bjerrum<sup>2</sup> discovered the value of his consulting-room door as a perimeter, before even a limited enthusiasm was aroused by his method. This apathy has persisted in spite of the early recognition of his work by Sinclair<sup>3</sup> and its more full development by Ronne,<sup>4</sup> Walker,<sup>5</sup> and Traquair. It is safe to say that at the present time there are many ophthalmologists, neurologists, neurosurgeons, and others, to whom the accurate charting of the field of vision is of the greatest value, who are not fully cognizant of quantitative perimetry and its possibilities. Of those who use it properly and to its full advantage, there are probably only a handful.

Any attempt to introduce or advocate a method of examination which is cumbersome and lengthy, no matter how excellent theoretically, is bound to end in failure if it has not a highly practical aspect which will recommend it to many men for their routine use.

It was Clifford Walker who showed that quantitative perimetry *could* be a practical method of examination. In doing so, he has gone into the mathematics of tangents, visual angles, distances, time, etc., all of which have been necessary and of great value in the development of the science of perimetry. The complexity of the subject, however, has frightened many men into neglecting it, and yet it is upon this complicated foundation that the present-day clinical methods of field-taking and interpretation are built.

When we speak of practical quantitative perimetry, we must necessarily confine ourselves to a working method which is applicable to all types of cases and which can be used in routine office practice. Walker and Traquair have shown us the way by developing a practical clinical method of perimetry. It behooves all of us to take full advantage of their methods of examination.

For a study of the visual fields, two types of examination are necessary. The perimeter is used to obtain information of the peripheral field and the field for large visual angles, while the more

\* From the Division of Ophthalmology, University of California Medical School.

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detailed study of the central portion of the field is carried out on the screen.

#### PERIMETER AND SCREEN

The instruments necessary are simple and inexpensive.

*The Perimeter.*—The perimeter for use at distances of 300 and 330 millimeters may be any one of the various types now on the market at prices ranging from \$300 down. An inexpensive arc perimeter with dull black surface, mounted on an adjustable table is sufficient. If one can have the illumination on an arm of the perimeter, it is advantageous but not necessary. Peter's<sup>6</sup> point is well taken when he states that the illumination should be a constant factor and that perimetry should be done in a dark room with artificial "day-light screened" illumination. This applies both to the perimeter and screen, and it is an easy matter, by means of filters and perhaps a rheostat, to measure the light intensity on the surface of the screen or on the perimeter arm by means of a common light meter borrowed for the purpose from the electric company. Once the desired light intensity has been found, the rheostat can be marked with a file and the light kept constant.

*The Screen.*—The screen, mounted on the dark-room wall, takes up practically no room and is of the simplest design. A frame of soft pine wood, reinforced at the corners, approximately 70 by 70 inches in size, can be made by any carpenter. The size largely depends on the wall space available. On this frame is stretched a sheet of black felt or heavy black cotton velvet. This can be purchased in two-yard widths, unseamed. I prefer not to mark or stitch the surface of the screen in any manner, relying instead on the tangent rule designed by Sinclair for transferring the field from screen to chart. With an unmarked screen, the fixation point may be moved about on its surface for short or tall persons, or from one side to the other in studying scotomatous areas in the region of the blind spot.

Sinclair's tangent rule may be made by planing the figures off a meter stick and marking in the tangent scale in ink. The rule is marked on one side for fields taken at one meter, and on the other side for fields taken at two meters. The stick is then revarnished. Figures for marking this rule may be found in the appendix to Traquair's textbook. It is a most accurate and convenient way of transferring the field from screen to chart.

#### TEST-OBJECTS

For test-objects those designed by Behrens, obtainable from Meyrowitz of New York, are preferable. These are spherical-headed pins ranging in size from one-half to five millimeters in white, with two-millimeter pins in red, blue, and green. They are sturdily made, and when soiled can be wiped off with a moist cloth, a distinct advantage over the paper discs generally used. Their surface is dull, so that no undue light is reflected from them. For larger objects, dull paper or cardboard mounted on black pins are easily made.

As a test-object carrier, one can cut the point off a Chinese knitting needle and then rub the

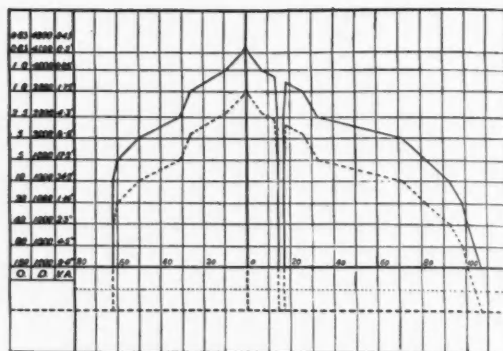


Fig. 1.—Horizontal section of field of vision. (From Traquair.)

needle with lamp black, giving it a durable, dull black finish. These needles are made of a fibrous, rather porous reed, into the end of which the test-object pins can be easily inserted.

A blackened orchestra leader's baton makes an excellent carrier.

I wish to emphasize that it is not necessary to have the best equipment, but that the utilization of simple principles on simple instruments is one of the basic advantages of this method of examination. Indeed, even Peter, who believes that quantitative perimetry has only a limited value and adheres to the qualitative methods of Ferree and Rand,<sup>7</sup> with pre-exposure and testing of color sensitivity, states that "the special advantage of quantitative perimetry lies in its simplicity."

The most easily used charts are probably those designed by Walker. They are accurately printed in terra cotta ink so that the field, when marked, stands out sharp and clear. They should be made of tough paper so as to withstand filing and other rough usage. Their size is a matter of individual preference.

The entire equipment necessary to do good perimetry, including a moderately priced perimeter, screen, lights, test-objects and tangent rule, can be obtained for from \$50 to \$60—a very modest investment when one considers its value.

#### STANDARDIZATION OF METHODS

Standardization of methods of perimetry, charting and nomenclature, are things greatly to be desired, and the surest way to accomplish this is to simplify the procedure and equipment so that it is within the range of everyone. The examination should be made in the dark room, with artificial illumination of a standard number of foot candles. The seven-foot candle-power of Ferree and Rand may be used on perimeter and screen, and is easily obtained and maintained constant. Test-objects should be clean and graduated in millimeters, and should be so noted in charting. Thus, Traquair's method of charting the size of the test-object as the numerator of a fraction, and the distance from screen or perimeter as the denominator, will tell at a glance the method of examination used. Any number of contour lines or isopters may be transferred to a single chart,



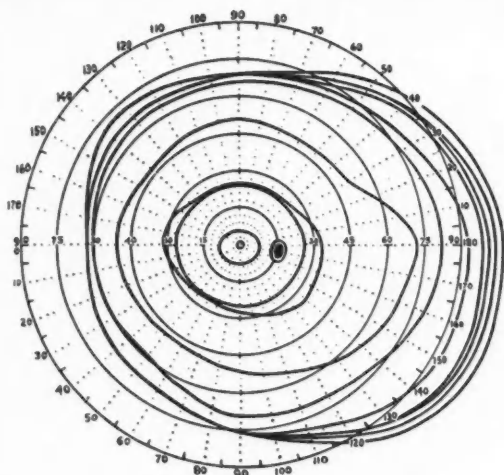


Fig. 2.—Plan of the visual field showing the same Isopters as in Figs. 1. (From Traquair.)

each with its appropriate notation. In this way the field picture in quantitative form may be seen at a glance.

#### SET ROUTINE DESIRABLE

In outlining a method for taking fields, it is well to follow a set routine designed to get the most out of the field in the minimum of time and with the least effort.

Examination on the perimeter, important as it is, may be delegated to a well-trained nurse. Here we are working with relatively large objects at short distances, *i. e.*, the visual angle subtended is large. We are outlining only the periphery or the coast line of the hill of vision, and the procedure is more or less of a mechanical nature. The examination takes from five to twenty minutes, depending on the complexity of the field. The nurse, unacquainted with the provisional diagnosis and unaware of what field changes to expect, proceeds in a routine manner, using first a three-millimeter object at the usual distance of 330 millimeters, and taking readings on 8 meridians. If defects are found, they are tested with larger objects to determine their density and, if possible, to throw some light on the character of the defect. In this manner the perimetric fields may be examined in every case and often unsuspected defects are found.

Examination on the screen need not be a routine procedure in every case, but should be made whenever there is any reason to suspect a field defect. Thus, whenever the corrected visual acuity is below normal, search should be made for scotomata, enlargement of the blind spots or defects in isopters for small visual angles. Because of the elasticity of the test, it must be performed by the doctor; but in no case should a single examination take more than twenty minutes for each field. It will often be found possible to do it in much less time than this. Examination of the field, like refraction, must not be unduly prolonged or it loses all of its value. The patient becomes fatigued and

often irritable, and this is true not only of neurologic cases but also of perfectly normal patients.

Having already had his field taken on the perimeter, the patient is aware of what is expected of him. A few well-chosen instructions as to fixation will put him further at ease. He should be allowed to see the test-object on the end of the pointer and then, as a further test of his concentration, and intelligence, his blind spot is quickly found and outlined. The size of test-object with which to start is determined largely by the patient's visual acuity. This is a matter of experience, and can be judged very quickly after a few trials.

In cases where central vision is 20/40 or better, I usually start with a 2-millimeter object at 1,000 millimeters, or a 3-millimeter object at 2,000 millimeters. After outlining the blind spot to determine its size, and whether or not there are any prolongations present, peripheral limits of the four principal meridians are then found for this object. The object is moved from blind to seeing area; and, having determined these four meridians, the object is moved in a circular fashion around the screen and just inside the previously determined peripheral limits. At any point at which it disappears, a pin with a dull black head is stuck in the screen as a marker, and another to mark its return to the seeing area.

If no defect is found, a smaller object is used, usually one millimeter, and this is carried in to the center on each meridian. When areas or quadrants of blindness are found, these are carefully outlined, both radially and in a circular manner, with large and small test-objects. In this way, what may at first have appeared as an isolated scotoma can often be traced to a connection with the periphery or the blind spot, or both. What may seem to be a quadrantanopia with one test-object will, with another, show up as a large arcuate scotoma.

With the field outlined for one eye with black-headed pins, the other may be designated with pins of a dark gray color. At the end of the examination it may be transferred immediately to the chart with the help of the tangent rule, or may be left on the screen until leisure permits its recording.

In cases where one has good reason to suspect a very small defect in the central portion of the field, or where amblyopia due to tobacco and alcohol is present, colored test-objects may be used. It is somewhat doubtful whether these are of value when used beyond 10 to 15 degrees from fixation. In the peripheral areas of the field more information is obtained by reducing the visual angle for form. In minute central scotomata, however, such as those seen in the early stages of senile macular degeneration or in the amblyopia ex-anopsia found in a squinting eye, the use of two-millimeter red, blue, or green test-objects is often of great help.

Except in very complicated field defects or in patients whose cerebration is very slow, all of these tests may be done in a relatively short time. In spite of short cuts, one can develop a surprising degree of accuracy and obtain important and valu-

able information. As stated above, the detailed research type of perimetry advocated by Ferree and Rand, and by Walker, is not necessary for practical clinical perimetry.

In the quantitative method the arc perimeter and the Bjerrum screen are used as part of the same examination, supplementing each other, no matter what the type of defect may be.

#### IN CONCLUSION

Our problems in ophthalmology have been vastly simplified by the development of a highly accurate method of functionally testing the visual sensory apparatus.

The equipment necessary is simple and inexpensive.

The examination is not difficult nor unduly time-consuming, *i. e.*, it is clinically practical for routine use by the busy practitioner.

Quantitative perimetry is as important a part of the subjective examination of the eye as ophthalmoscopy is of the objective examination, and when properly conducted gives as much information.

This examination should be a routine ophthalmic procedure in which a definite standard of illumination, test-objects, charting, and nomenclature should be adopted.

Because the method offers so much valuable information, this paper has been presented with the hope that it may encourage more ophthalmologists to adopt as a routine office procedure a simplified and practical quantitative perimetry.

384 Post Street.

#### REFERENCES

1. Traquair: Introduction to Clinical Perimetry. London: Henry Kimpton, 1931.
2. Bjerrum: Tr. X Inter. Nat. Med. Congress, 10:66-79, Berlin, 1890.
3. Sinclair: Tr. Ophth. Soc. U. Kingdom, p. 384, 1905.
4. Ronne: Arch. f. Augenh., 78:284, 1915.
5. Walker: Arch. Ophth., 46:537, 1917.
6. Peter: Principles and Practice of Perimetry. Lea and Febiger, Philadelphia, 1923.
7. Ferree and Rand: Psychol. Rev., 29:457, 1922.

#### DISCUSSION

GEORGE L. KILGORE, M. D. (625 Bank of America Building, San Diego).—We should be deeply grateful to Doctor Harrington for bringing the subject of practical quantitative perimetry to us in such a clear, concise manner. If I interpret the meaning of this paper rightly, it is to place emphasis not so much on the need of a very thorough technique in the taking of perimetric fields and in doing tangent screen studies, but to stimulate and encourage a more frequent routine use of these adjuncts to a better diagnosis. No one can deny the need of this encouragement and stimulation. I shall repeat the statement that many ophthalmologists, not particularly interested in the neurologic aspects of the specialty, have a fear of the problem on account of its apparent complexity, and seldom do even a rough examination of the visual fields.

A thorough history in all cases in which there are symptoms relative to a central nerve-system disorder is most important. The ophthalmologist should be on the alert for any symptoms, for we all know that it is impossible to make a correct diagnosis of these lesions without an exhaustive study of the fundi and visual fields. The study should be based on a thorough knowledge of the central nerve system diseases, arising from local intracranial and spinal lesions, general disorders, and toxic disturbances. The finding of symptoms such as headaches associated

with nausea, nausea and vomiting, skin areas with abnormal sensations, auras with defects of smell, etc., and symptoms referred to the extremities, should be followed with the most thorough perimetric and tangent screen tests.

I shall repeat, for emphasis, the necessity of obtaining a complete cooperation of the patient in carrying out the work. I have found that most patients require some instruction as to the purpose of the tests, along with an actual application of the several phases of the technique. They respond much better to several trials rather than a prolonged examination. In this manner, the patient is usually mentally fresh, somewhat limiting the fatigue element.

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CLIFFORD B. WALKER, M. D. (427 West Fifth Street, Los Angeles).—To Doctor Harrington we are indebted for a most excellent paper, which I believe represents a praiseworthy attempt to put perimetry on a more available, perhaps even routine basis.

As far back as 1921<sup>1</sup> I first also attempted to set forth in a somewhat similar paper how easily quantitative perimetry could be managed. I apparently waived the fact that I had already been giving the general subject of perimetry very special attention for ten years. I naively assumed that my readers had a preliminary education (or experience) somewhat similar to mine and would be eager, willing and able to run about gathering the numerous necessities described. I found that this assumption was rarely true. In the course of time my viewpoint gradually changed, until recently I seem inclined to remark: "There is no royal road to neurological ophthalmology, commonly called perimetry."

Perhaps a hasty field is better than none. Yet a rapid fruitless field may permit, let us say, for instance, an early undiagnosed pituitary case, to say, "Yes, my fields have been taken and they are all right." If further work is thus inhibited, a costly sequel may later result.

One constant characteristic of the field that turns out to be worth something, in a diagnostic way to the doctor and the patient, is that it took time to make the examination and permanently record it.

In a way, Doctor Harrington seems to intimate that the nurse or technician first makes a complete perimetric record in five to twenty minutes, using test-objects from 3/330 up, if necessary on eight meridians, screen work being waived in most cases. This routine might seem a dangerously close approach to the action point of a law of diminishing returns.

If I had to pass routinely in five or twenty minutes on the functional normality of many retinas, I believe more loopholes would be closed by reversing the procedure. That is, test the blindspot first in order to judge the values of the answers, then outline the 26-degree normally round critical field of the 1/2000 test-object, and then ophthalmoscopically examine the peripheral retina if no more time is left for the perimetric work. This much can actually be recorded in twenty minutes, and will more safely obtain higher percentages of valuable information, because if this critical test, as I call it, is not passed, more time, often over an hour, may be spent in completing a quantitative perimetric record of diagnostic value.

Time permitting only a closing remark, may I merely note that velvet is very apt to gladden undesirably in the light and is more likely than felt to tenaciously hold whitish specks of lint, etc., quite difficult to brush off.

Again, time savers should not overlook the fact that, with Doctor Harrington's unmarked screen, much time in recording is necessary. In his description no accuracy of measurement is stipulated as regards meridians. Guessing them may result in mistakes of five or more degrees if done hurriedly. He directs the perimetrist to go to Traquair and find out for himself what numbers to put on his one-meter ruler after he has skillfully planed the ruler bare to receive them. Yet I find no mention of the protractor necessary to lay off each meridian with the same accuracy with which the distance from the center is re-

<sup>1</sup> Walker, Clifford B.: The Value of Quantitative Perimetry in the Study of Post-Ethmoidal Sphenoidal Disease Causing Visual Defects, Boston M. and S. J., Vol. 185, No. 11, pp. 321-326 (Sept. 5), 1921.

corded. Perhaps it may be fair to state that our perimetrist will have to do a little hunting before he gets a time-saving protractor to fit his planed, perhaps varnished, ruler. Then there will be the plumb bob or level which must be used for real accuracy in establishing the vertical or horizontal meridian as a starting point. Personally, I have long since had enough of time-wasting rulers and protractors in quantitative perimetry; they do not fit the twenty-minute picture unless several of the said eight corners are cut, or accuracy is otherwise allowed to become the weak link.

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JOSEPH WILLIAM CRAWFORD, M.D. (490 Post Street, San Francisco).—Perimetry furnishes a functional test of the entire visual sensorium from the brain to the end organ, or retina. An objective examination of the visual tract *in vivo* is for the most part impossible. Disturbances in function of such a highly organized structure precede, as a rule, recognizable alterations in its architecture.

The only instruments necessary are an arc perimeter and a tangent screen, the former to define the peripheral limits of the visual field; the latter to study more minutely the central and paracentral field. No ophthalmologist or neurosurgeon should limit himself to either instrument, but should use one to supplement the other. The tangent screen, devised by Ferree and Rand, which may be attached to their perimeter, is a very good one; but for routine use in the office or clinic, a large one, such as that described by Doctor Harrington, or the one described by Clifford Walker, is more useful. One other instrument that deserves wider use is the small hand campimeter devised by Peter. For patients too ill to be moved about, and for rapid routine office and clinic work, it furnishes accurate information with a minimum loss of time and effort.

The usual procedure with the tangent screen is to use a form stimulus subtending the smallest visual angle easily recognizable by the patient and, in addition, stimuli of different colors, usually blue, red, and green. The purpose of the test is to determine the "point in the field at which the stimulus in question is of threshold value for the light and color sense" (Ferree and Rand).

Stimuli of different colors are advocated because of their increased sensitivity in slight pathologic alterations; but there is undoubtedly also a special and differential susceptibility for colors in pathologic disturbances. Peter points out the fact that the blue field suffers first in nutritional disturbances, affecting the neuro-epithelial layers of the retina; whereas the green and red fields suffer first in disease of the nerve fibers.

All of us have observed the early and complete disappearance of the green field in tobacco-alcohol amblyopia, with preservation of the blue field.

A modification of the method described above for studying the central and paracentral field, is the method termed "quantitative perimetry." The technique of this method has been described by Doctor Harrington and consists essentially in substituting for the color stimuli, white stimuli of various sizes. Advocates of this method argue that a decrease in the size of the stimulus increases the sensitivity of the perimetric method; but, as Ferree and Rand have pointed out, "such extremely small stimuli are sometimes used that they are more properly test-objects for visual acuity than for the sensory process." They recommend, rather, that form stimuli be used only until the level of visibility of the color stimuli is reached. Beyond this point color stimuli are more informative.

No ophthalmologist or neurosurgeon can afford to limit himself to either quantitative or qualitative perimetry, for each has its sphere of particular usefulness. No one can gainsay the value of quantitative perimetry in neurologic cases. The information gained from neurologic patients by using color stimuli is of no more value, certainly, than that obtained by using small white test-objects; and as it calls for more intelligence and coöperation from people who are obviously quite ill, it is probably less trustworthy.

However, most ophthalmologists who have to deal with many more cases of ocular disease than neurologic disease, will get more valuable information from a routine study of the visual field, using form and color stimuli, than from a study confined to the use of form stimuli alone.

## SILICOSIS\*

By PHILIP H. PIERSON, M.D.  
San Francisco

DISCUSSION by W. P. Shepard, M.D., San Francisco;  
L. Henry Garland, M.D., San Francisco; Munford Smith,  
M.D., Los Angeles.

SO much has been written on silicosis from its historical and clinical manifestations that I will not go into detail on those phases, but will discuss some of the conditions which have led up to the "racket" which now exists in this field and some of the means at our disposal, as physicians, to help control it.

What are some of the factors which have produced this state of affairs? There are numerous causes, but I will mention only the following: (1) An increasingly large field in industry, where silica or silicates play a part—mining, quarrying, sandblasting, manufacture of polishes, molding, glass making, tunneling, besides the asbestos and talc industries. (2) More widespread appreciation of the presence of dust-borne diseases and their differentiation from tuberculosis. (3) An unrest among "Labor" because of working conditions or wages, which has led them to attack "Capital" in the form of suits for damages, some of which are justifiable and some not based on true facts. (4) Unscrupulous or misinformed lawyers and doctors have been led to plead and testify in cases called "dusty" without knowing the true facts about silicosis, but acting on presumptive knowledge.

### AN INDUSTRIAL PROBLEM

It has been said that 500,000 workers are exposed to silica and potentially each of these persons is subject to silicosis. It, then, does constitute a problem worthy of our consideration. And perhaps the fact that our attention has been particularly focused on it is a blessing in disguise. In California, and a few other states, silicosis is a compensable disease. Our laws at present are so worded that a workman may and must apply for compensation insurance within a period of six months from the time that he has symptoms referable to this disease. By the time symptoms have appeared the condition must have been present for some time, and it is likely that disability will be progressive thereafter. The problem facing the insurance companies is to charge rates sufficiently high to cover all probable liabilities, and all employers within a given industry must pay approximately the same rates. In view of the fact that the development of silicosis may be delayed for months or years after an employee leaves one position, a new problem is added; for previous exposures in dust hazards are proportionately liable, and the employee may exercise his right to compensation some time after premiums cease to be paid. Wet mines or those relatively free from dust have had to suffer equally with the dusty

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ones. A type of voluntary annuity insurance might be devised from the wealth of actuarial statistics relative to the length of exposure to certain concentrations of dust and the consequent development of silicosis, so that men could be moved from a dangerous exposure before disease developed; and from the dividends so obtained establish themselves in less dangerous occupations.

"Labor" will be very reluctant to enter into any plan of periodic physical examinations of the workers if the object is to expel them from their positions. This has a very meritorious argument in its favor. Workers who are found to be suffering from silicosis, even in its earliest recognizable stages, should be transferred to other phases of the work where they will be safe.

The insurance companies have another problem to contend with, namely, defending themselves against unscrupulous or misinformed litigation; in other words, the "racket." We might define this sort of racket as a situation in which many false claims for damages follow in the train of a relatively new field where danger has been discovered, and where rightful claims amount to considerable sums of money.

#### A MEDICAL PROBLEM

And now, from the physicians' point of view, what are our problems? We are called upon to examine men, evaluate their history as to exposure in so-called dusty occupations, interpret the roentgenograms and other laboratory data, and give an opinion as to whether disease—silicosis—exists. Under our present system this entails many difficulties, chief among which are: (1) what do we mean by the term "dusty"? and (2) the differentiation of silicosis from tuberculosis and other diseases causing a pulmonary fibrosis.

#### THE PROBLEM'S SOLUTION

There is no doubt that a tremendous danger lurks in those industries above mentioned where the laboring man is exposed to high concentration of fine silica dust over long periods of time. And even with the knowledge that we have at hand, I think this does not present an unsurmountable problem. If an epidemic of scarlet fever, typhoid, or smallpox breaks out, our Boards of Health know the sources and put into operation at once the machinery to stop them. They are also aware that without proper precautions such epidemics might easily occur today, and these preventive measures are strictly enforced every day without our even giving them a thought. To handle the silicotic problem we must likewise know the source or sources from which dangers arise, and meet these dangers with modern medical and engineering skill. And not only must they be met once, but we must meet them constantly if the hazard is to be removed.

Of all dusts encountered in industry those considered most dangerous are silica and certain silicates, such as asbestos and talc. What are the qualifications which determine whether such exposure is harmful or not? From the investigations made by the Bureau of Mines and other com-

missions, we know that it is dependent upon (1) the total number of dust particles per cubic foot, (2) the size of these particles, (3) their mineralogic and chemical composition, (4) the length of exposure, and (5) the presence of concomitant gases. No industry should be termed harmfully "dusty" without first knowing these facts.

The harmful factors in this dust hazard are silica, certain silicates, and gases. So far it has not been proved that serocite is a harmful silicate, but asbestos (magnesium iron silicate) and talc (hydrous magnesium silicate) have been proved to be dangerous. Furthermore, we know that particles less than ten microns are the ones taken up by the phagocytic endothelial cells and carried through the lymphatics, and that larger particles are generally expelled from the respiratory tract by the ciliated epithelium or caught in the upper respiratory tract, and thus do not enter the lungs.

#### WHAT MUST BE KNOWN

First of all, how are we to know whether a mine, or factory, or industry is a menace from this point of view? Reliable dust counts made where the person is employed, and at a level of the worker's mouth, is most important. This analysis is a highly technical procedure, and must be done by a chemist trained in this field. At present the Greenberg-Smith impinger is the most accurate instrument for making these counts. As the very fine, invisible particles may be thrown high in the air when work is first begun, it is wise to make correlating counts some hours later. In the counting of the particles we must know how many are present per cubic foot and the percentage that are under ten micra. An analysis of the rock or substance used should also be made, and all its components quantitatively known. The dust inhaled may not be in exactly the same proportion as in the original material, and so it is necessary to analyze the dry or wet settled dust collected from ledges or rafters. That data, taken in conjunction with the dust count, tells us the size and number of particles of the minerals inhaled. From the statistics compiled by many surveys it is known that the hazard is in proportion to the number of fine particles, their composition, and the length of exposure. Quoting from the Pennsylvania Surveys, Anthracite-Silicosis, 1934: "Employment in an atmosphere containing less than fifty million dust particles per cubic foot would produce a negligible number of cases of anthracite-silicosis when the quartz content of the dust was less than 5 per cent. In the gangways, where the silica content of the dust was about 13 per cent, a safe limit appeared to be ten to fifteen million particles per cubic foot. The limit of tolerance for rock workers was set tentatively at five to ten million dust particles per cubic foot of air."

The chemist should also make a determination of the gases present in the environment of the workers. Banting, in his recent observations, has shown that nitrous acid and sulphur so irritate the normal lining of the bronchopulmonary tree that silica crystals are more readily absorbed, and hence disease develops more rapidly.



The second analysis should be of the workers. This means not only good stereoscopic roentgenograms intelligently interpreted, but examinations of the workers—a history of past exposure to dust (and its type), acute and chronic respiratory diseases, and evidence of tuberculosis. (An interesting and helpful survey might well be made of the incidence of tuberculosis in the population of the community where the miners live, as in such a community a large proportion of the inhabitants work in the mine; and the tuberculosis hazard may thus be estimated.) The examination should include a complete study of the respiratory tract. A simple exercise test (the chair test) is helpful in determining the cardiac and respiratory reserve. Expansion of the thoracic cage and excursion of the diaphragm in the fluoroscope will aid in determining the amount of emphysema resulting from the pulmonary fibrosis. It is well known that fibrosis from a dust exposure may not make its appearance for some time after the exposure. Severe respiratory disease often greatly accelerates the development of the fibrosis. These are reasons why it is unfair to the worker to place a time limit in which he may make a claim.

If these two examinations are made correctly they should check each other, for if serial examinations of the men show the development of silicosis in the face of a negligible dust hazard, it is evident that the men have been previously exposed or that the count is inaccurate. This statement implies the necessity for periodic examinations, every six or twelve months, of the men and the dust. If a dust hazard is found and corrected by water properly applied, better ventilation, opportune time of blasting, and so forth, subsequent dust counts will show this improvement.

A very important phase of this problem must be carried on by the pathologist. As has been said, the difficult case to accurately diagnose is the one where the exposure has been relatively short and the fibrosis has not developed beyond a slight degree. Pathologic and mineralogic analysis of these lungs at autopsy will go a long way in determining the type and amount of disease present so that roentgenograms may be more accurately interpreted.

#### REPORT OF CASES

As examples of testimony given without sufficient knowledge of these underlying conditions, may I cite from two industrial cases I recently studied:

CASE 1.—A man had been employed as a machinist, and his duties involved trimming steel objects on a lathe. Rather suddenly he developed cough, expectoration, shortness of breath, and loss of weight. X-ray examination of his lungs was made and he was sent to a tuberculosis sanatorium, where tubercle bacilli were found in his sputum. After a few months of improvement he left and came into the hands of a good physician, who felt that his "dust" exposure might be a factor. Other x-rays were taken and presented to several roentgenologists with this story, especially the dust phase of it, and many rendered the opinion that he was suffering from "pneumoconiosis or silicosis." An analysis of the dust disclosed 2 per cent silica, and the counts ranged from 1.6 to 2.8 million particles per cubic foot. One roentgenologist went so far as to state, "The x-ray appearance is typically that of pneumoconiosis, and this diagnosis can be made without the

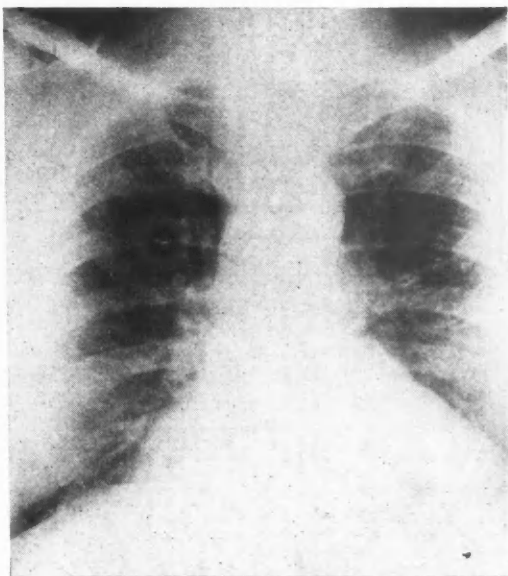


Fig. 1.—Mr. W.—Asbestosis. Note fine diffuse linear thickening giving ground glass appearance

clinical findings and occupational history, but the latter is confirmatory evidence."

This is an example of what I mean by presumptive evidence. The difficult cases to properly evaluate are not so much the late cases where silicosis is definitely established by a long history of exposure and roentgen shadows which appear quite typical of silicosis, but in the earlier cases where a diffuse fibrosis exists with a shorter period of exposure. Many conditions may cause a diffuse fibrosis—tuberculosis, chronic bronchitis, bronchiectasis, chronic pneumonia, and so forth. It is here that research into the pathologic study of these cases is greatly needed.

CASE 2.—My second example illustrates a mistake I made a few years ago. A patient of mine had had thirty-two months' exposure to silica dust in a plant where enameled tubs and bowls were made. In this industry, sandblasting and emery-wheel grinding were frequently employed. The man had a tuberculosis which was treated by artificial pneumothorax. A diffuse, fine fibrosis was present in both lungs, and in places a fine nodulation. After considerable hesitation and study, I came to feel that perhaps this was evidence of the irritation from the dust he had inhaled. He died and we made an examination for silica in his lungs, which showed no more than is found in normal individuals. Consequently, I had to admit that my diagnosis was wrong.

Much light would be thrown on this type of case if more such studies could be made. I cannot emphasize this point too strongly, and hope that wherever such opportunity arises specimens of lung tissue will be submitted to mineralogic and pathologic study. I have recently heard of a case where the diagnosis of siderosis was made because some iron particles were found in the lungs. It is the feeling of those best informed that iron in the lung produces some pigmentation, but very little fibrosis, and that there is not a particular predisposition to tuberculosis.

TABLE 1.—Mr. W.—Summary of Industrial and Clinical Data

Name Age Sex	Length of Exposure	Location of Exposure	Previous Dust History	Past History Respiratory Disease	Past or Family History Tuberculosis	Physical Examination Respiratory Tract Chest Expansion Chair Test	X-rays
W. 58 M.	Twenty-five years, forty hours a week, plant superintendent in asbestos work, four to five hours a day. This is equivalent to 12½ years' constant exposure.	Zones 1, 2, 3, 4, 5. Dust counts 4-25 million particles per cubic foot, 10 per cent less than 10 micra, 84 per cent asbestos.	Kesby and Mattison Counties, "Roundabout" in clean and dirty rooms."	Typhoid pneumonia at 18	None	Weight 166½. Eyelids puffy and injected; nose poor space. Heart, negative. Lungs, diminished breath sounds throughout; at left apex, increased whisper and a few rales. Blood pressure, 160/94. Fluoroscopic, general haziness throughout both lungs with enlarged hilar glands. Diaphragm, right, 1 centimeter; left, 2 centimeters; chest expansion, 1 to 2 centimeters. Chair test, 25 steps.  Before exercise P. 92 R. 20 After exercise .....124 24 After two minutes' rest.....108 24	Moderate enlargement of heart, increased diffuse granular peribronchial markings throughout both lungs. More pronounced in lower lung fields. Confusing larger areas in lower lung fields. Evident asbestosis in both lungs.

## COMMENT

With all these points in mind I feel that we, as physicians, should be much more careful in stating in a given case that a patient is suffering from silicosis, and before rendering such an opinion we should know the length of exposure, the minerals involved, the type of dust hazard and its specific reaction, and that we should not make statements or give opinions which carry considerable weight until we know as much as can be determined in each individual case.

If such surveys as these were started in all dusty industries, would we not lay the foundation for more accurate knowledge and, what is of more importance, greater safety for the worker? This, as I have said, would mean lower insurance rates, and in these factors I think both Capital and Labor would profit. Why spend time and money building up reserves against damage suits when a great many would be averted by healthier working conditions? Is there not an opportunity and need for a responsible, unprejudiced institution to which such problems as dust hazard and health surveys may be brought and from whose findings sanitary engineers could, by their skill, work out their solution? An accurate foundation must be laid, and the sooner it is done the sooner will the rightful case receive proper recompense. Moreover, it will stop the "racketeering" where silicosis does not exist.

Labor will not cooperate in any plan of physical examinations of workers if the purpose of the same is to discharge men when early or more advanced fibrosis is found. The employers must prepare themselves so that when employees with disease are found they may be transferred to other occupations free from the dust hazard. This type of mutual assistance will help the employer by keeping his workmen fit, and it will appeal to the labor organizations, for their men will be continued at some type of work which is safe.

## IN CONCLUSION

In conclusion, may I illustrate some of these factors in an analysis I recently made of an asbestos factory. Six workers were examined in the manner illustrated in the chart on the tripod. Dust counts were made in different parts of the factory where exposure was taking place, and it was found that they varied from six to twenty-four million particles per cubic foot, and that the dust contained 84.48 per cent of asbestos, 80.36 per cent of the fibers being less than 10 micra in length. One employee had definite asbestosis, one was questionable, and the others were given a clean bill of health. By a better enclosure of the saw which caused the dust, this hazard was reduced to one employee, who could be properly protected, and their liability was minimal. A base line for the health of their employees was established, which will be of great assistance in comparison with the subsequent periodic examinations and dust counts.

## SUMMARY

Silicosis (as a compensable disease) has become a "racket" because of many factors, chief among which are the lack of accurate knowledge as to the working conditions in certain industries and the loose use of terms based on presumptive knowledge.

It is possible to properly evaluate the hazard of silicosis by reliable dust counts, and competent and intelligent medical and roentgen examinations.

These complete examinations must be repeated periodically to determine whether the hazard has been removed and whether the health of the worker is such that he may continue in his occupation.

Replacement in less hazardous positions must be a part of the program if Labor is to be fully coöperative in this plan.

Actuarial statistics may be used to promote a type of insurance which will act as an annuity for those who change their work before trouble develops and thus make the transition from one occupation to another an easier procedure.

490 Post Street.

#### DISCUSSION

W. P. SHEPARD, M. D. (Metropolitan Life Insurance Company, 600 Stockton Street, San Francisco).—We must admit that Doctor Pierson has called our attention to one of the most urgent problems confronting industry and medicine in this State today. Like many industrial-medical problems, there is much confusion both in medicine and industry concerning silicosis—a clinical entity about which we have considerable knowledge. There is pressing need for each of us who come in contact with the dusty industries to impart the following facts:

1. Silicosis is a disease caused by the prolonged inhalation of finely divided silica dioxid. It is probably only produced when such silica dioxid exists in the air of the working space in amounts in excess of twenty million particles less than 10 microns in diameter per cubic foot of air. It usually requires prolonged exposure to such concentrations before the disease is produced, perhaps at least two years. In this connection, it is well for us to remember some of the peculiar physical properties of such small particles: (a) they do not settle, but will remain suspended in air for a long time; (b) they are invisible to the naked eye, so that even in the presence of strong light the air may look clear; (c) these particles are not always controlled by water. Wet-drilling only partially solves the problem. This is due to the fact that the surface tension is so great, compared with the weight of the particle, that water will not adhere to the surface.

2. Silicosis, caused by the inhalation of large numbers of finely divided particles of silica dioxid over a considerable time (a) predisposes to tuberculosis; (b) can be diagnosed before tuberculosis is superimposed; (c) and disability can usually be prevented by prompt removal from exposure at early stages. This involves careful periodic physical examination, including x-rays taken by special technique and read by experts with a view to finding the first-stage silicosis cases.

3. Silicates: Only asbestos produces a pulmonary fibrosis which may cause disability. The other silicates have not been shown to cause appreciable pulmonary disease. Asbestosis, as far as we know today, does not carry with it the same predisposition to tuberculosis as silicosis.

4. The dust hazard in a given industry can always be measured, and can usually be controlled.

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L. HENRY GARLAND, M. D. (450 Sutter Street, San Francisco).—The importance of reliable dust counts has wisely been stressed by Doctor Pierson in his very valuable paper dealing with certain aspects of silicosis. As physicians, our first problem in dealing with silicosis is to diagnose it properly. The diagnosis of silicosis is based (1) on the history, (2) the clinical findings, and (3) the roentgen findings. With properly made and interpreted roentgenograms, the roentgen findings constitute the strongest link in the chain of evidence, and the clinical findings the weakest link. However, we heartily agree with Doctor Pierson that the diagnosis of this condition can rarely be made solely on the roentgenograms. It nearly always requires the concomitant history of definite exposure to hazardous concentrations of silicious dusts.

As an example of the differential diagnosis of pulmonary fibrosis based on the roentgen findings alone, I am reproducing the following tables from my paper entitled "The X-Ray Aspects of Pneumoconiosis," which appeared in *Radiology*, July, 1936:

TABLE 1.—*Lesions Simulating Silicosis in the Roentgenogram*

1. <i>Incipient Type</i>
Passive congestion of the lungs (cardiac).
Acute respiratory-tract infections.
Asthma.
2. <i>Interstitial Type</i>
Passive congestion of the lungs (cardiac).
Acute and chronic respiratory infections (especially bronchitis and bronchiosinusitis).
Polycythemia.
Metastatic malignancies, infiltrative type.
Mycoses.
Lymphoblastoma (infiltrative Hodgkin's).
Pulmonary syphilis.
3. <i>Nodular Type</i>
Millary tuberculosis.
Metastatic malignancies (millary carcinosis).
Periarthritis nodosa.
4. <i>Advanced Type</i>
Chronic pulmonary tuberculosis.
Pulmonary tumors.
Pulmonary syphilis.

TABLE 2.—*X-Ray Findings in Silicosis (Uncomplicated or Simple Silicosis)*

1. <i>Incipient Type</i>
Hilar shadows wider and denser than normal; perihilar pulmonary tree markings wider than normal.
2. <i>Interstitial Type</i>
Hilar shadows wider and denser than normal; slight or moderate diffuse thickening of the pulmonary tree markings, associated with faint haze in middle or lower thirds of the lungs in early cases; extensive thickening in well-established cases.
Limitation of diaphragmatic excursion (varying from slight to marked).
3. <i>Nodular Type</i>
Hilar shadows wider and denser than normal; diffuse scattering of small, dense, discrete nodules throughout both lungs, especially in the middle thirds; apices usually free.
Limitation of diaphragmatic excursion.
4. <i>Advanced Type</i>
Hilar shadows less prominent than usual; diffuse thickening of the pulmonary tree markings, and/or diffuse nodulations; small or large areas of density due to coalescence of fibrotic or nodular lesions.
Emphysema.
Limitation of diaphragmatic excursion.
Occasional cavitation.
Enlargement of the right side of the heart.

For those who are interested in the subject, the minimum requirements for satisfactory roentgenograms of silicosis cases are described in the above-mentioned paper and, also, in Pancoast's article in the *Journal of Industrial Hygiene*, Vol. 16, p. 165, May, 1934.

No matter how detailed a fluoroscopic examination is or how perfect a given set of stereoscopic roentgenograms are, it is to be remembered that the interpretation is the only part of the roentgen examination which is of value. The sooner that more stress is laid upon competent interpretations, and less upon "an x-ray plate of the lungs," the sooner will accurate diagnosis of silicosis be established in surveys of dust workers.

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MUNFORD SMITH, M. D. (727 West Seventh Street, Los Angeles).—It is a pleasure to discuss a paper such as this one by Doctor Pierson, who is familiar not only with the literature on the subject, but has had a large experience in the application of his knowledge of silicosis to many concrete cases. There are, however, some points in his discussion with which issue must be taken, not because he is less familiar with the subject than I am, but because the correction of errors in even little relatively unimportant details may prevent further confusion.

The subject of his paper is "Silicosis." At the risk of being considered hypercritical, there must be objection to the inclusion, as sources of silicosis, of asbestos and talc, both of which are silicates of magnesium and in neither of which does silica exist in a free state except as a contaminant from the quartz which may have bound together the strata of the material in its natural state. Asbestos may produce a severe form of pneumoconiosis; and while

talc theoretically causes a silicosis, which is a form of pneumoconiosis, it is a relatively harmless material, and to my knowledge there is only one reference in the literature indicating that it is capable of producing anything more than a mild fibrosis, this one exception being a report of the United States Public Health Service of a survey of two mines in a county in Georgia with a very high tuberculosis morbidity rate, which is unrelated to the inhalation of talc.

Under the qualifications determining the harmfulness of a dust, Pierson gives as one of the factors the presence of concomitant gases and refers to the work of Banting, who has offered the hypothesis that gases present in the atmosphere of mines irritate the normal lining of the respiratory tract, with the result that silica is more readily absorbed. I believe this theory has not been accepted.

In discussing the legal requirements of the California Workmen's Compensation Laws, as applied to claims for silicosis, Doctor Pierson states that our laws at present are so worded that a workman may and must apply for compensation insurance within a period of six months from the time that he has symptoms referable to the disease. Doctor Pierson's statement is correct, I believe, as to the wording of the law, but in the application of it it is only necessary that the workman apply for compensation insurance within a period of six months from the time that he knows he is suffering from disease and, as a matter of fact, it seems that in the practical application of this part of the law, it is only necessary that he make such claim within six months of the time that he admits he knew of the presence of the disease.

Finally, Doctor Pierson refers to the importance of unscrupulous or misinformed lawyers or doctors in the situation which has arisen not only in California, but elsewhere. As a physician, I am incompetent to judge the ethics of the legal profession, but I believe I am capable of doing so with those of my own. In an experience of well over three hundred cases involving the question of possible harm from dust, it has never been my experience to contact an unscrupulous physician, unless a misrepresentation of his qualifications dependent on knowledge and experience in diseases of the lungs and silicosis could be so classified, but the amount of misinformation possessed by some of the members of both groups has been surprising.

If Virchow was really the father of pathology, he would surely have difficulty in recognizing some of his offspring, if we are to judge by the fantastic theories that have arisen to explain some of the claims of silicosis with which I have come in contact. The explanations sometimes presented in support of the claim of silicosis are so diametrically opposed as to make medicine and chiropractic seem blood brothers.

Some claims for compensation for silicosis, which disease is certified as being present by physicians, not only lack evidence of that disease, but silica dust may be entirely absent from the atmosphere of employment.

As members of a profession who see much of human suffering, probably the majority of us would, if it were possible, prefer some adjustment of the wealth which is so unevenly distributed, and when a claimant who attributes ill health to some factor in industry appears before us, it is easy to permit our sympathies to lead us astray. "Soaking the rich" has been one of the favorite pastimes of recent years. That, in my opinion, is the principal factor in many unwarranted claims. We may even be tempted, since the defendant is a rich corporation, to emulate Robin Hood and take from the rich for the poor. However, our opinion is sought as that of scientists and not as economists of the Huey Long school, and when we accept that position we should function in such a way as to justify the faith placed in us.

To me it seems that if we keep in mind that the claim which we are supporting is one covered by the provisions of the Workmen's Compensation Law, which provides for medical care and payment of compensation for illness or injury incurred in the course of employment, and is not life or health or unemployment or old-age insurance, we may many times avoid a position which can be exceedingly embarrassing.

Finally, it is possible for any physician who is not familiar with silicosis to obtain the essential data on its etiology and diagnosis. Our medical libraries will gladly provide such information.

## TRAUMATIC RUPTURE OF THE UTERUS IN ADVANCED PREGNANCY\*

By E. M. LAZARD, M.D.

AND

F. E. KLIMAN, M.D.  
Los Angeles

DISCUSSION by Sterling N. Pierce, M.D., Los Angeles;  
J. Morris Slemons, M.D., Los Angeles; Leon J. Tiber,  
M.D., Los Angeles.

IN presenting the report of a case of rupture of a uterus, eight and one-half months pregnant, by external violence, we purpose to review the literature and consider the mechanics of this accident. We will not consider those cases of uterine rupture through cesarean or myomectomy scars; nor those ruptures occurring as a result of obstructed labor or in the course of operative attempts at delivery or abortion.

### CLASSIFICATION

1. Complete, through the entire uterine wall, with complete or partial extrusion of the uterine contents into the abdominal cavity.

2. Incomplete, where the rupture is not through the entire uterine wall. As to location, the tear may be in the upper or in the lower uterine segment, usually the upper when due to external trauma.

### ETIOLOGY

While a trauma of sufficient force may cause a rupture in a healthy uterus, yet the presence of a weakened point caused by preceding disease, such as hyalin degeneration of muscle fibers resulting from multiparity, previous curettages, placenta praevias, intramural fibroids, etc., would undoubtedly increase the probability of rupture resulting from external violence.

In a review of the literature, by Estor and Pueck (referred to by Jaroschka, *Medizinische Klinik*, 1929), up to and including 1929, forty cases were found. Jaroschka reported one case, occurring in the Prague clinic in a series of thirty thousand obstetric cases. Orthner (*Münchener Med. Wochenschrift*, August, 1933), reported an additional case in which the patient had been struck across the abdomen by a breaking trace on a team of horses which she was driving. At operation, one and one-half hours after the accident, the patient was found to have a ruptured uterus, with complete extrusion of full-term twins and placenta into the abdominal cavity.

Orthner gives the following explanation of the mechanics of the injury: As to whether the blow or the resultant fall is the principal factor, he says that as a rule one can assume that whichever is of the greater intensity is the chief factor, *i. e.*, with a slight blow and a fall from a great height, the latter is the main factor; with a severe blow and a short fall to the floor, the blow in all probability is to blame. It is not possible, as a rule, to determine the kind and direction of the force from

\* Read before the Obstetrics and Gynecology Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.



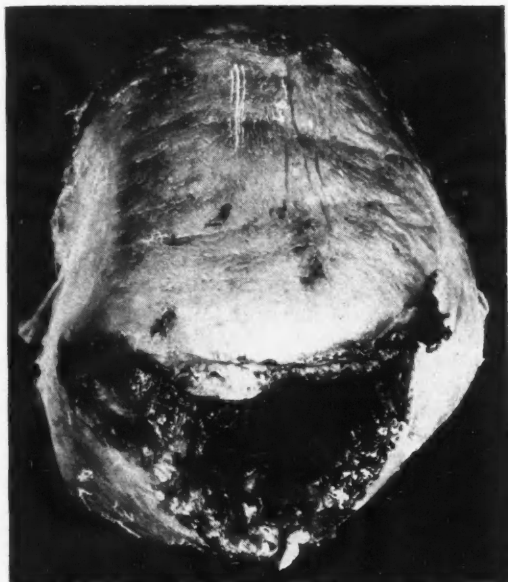


Fig. 1.—Ruptured uterus. Transverse rupture on the posterior surface of fundus.

the location of the uterine rupture, as this usually occurs by contrecoup.

The rupture is always the result of a sudden increase of the intra-uterine pressure, caused by the sudden compression of the abdominal contents.

In accordance with the laws of hydrodynamics, this pressure spreads equally in all directions in the uterine cavity filled with amniotic fluid. The tear occurs at the weakest point of the uterine wall. At the end of pregnancy that point is at the fundus, which, moreover, lacks the protection of the bony pelvis. In many cases it appears that the placental site is especially weak because of the increased vascularity.

The following case occurred in the service of the senior author at the Los Angeles General Hospital:

#### REPORT OF CASE

Hospital No. 394-515. Gravida 1. Para 0. Nineteen years of age. Admitted December 22, 1934, at 7 p. m. About eight months pregnant. One month and two weeks ago she was under observation for threatened premature labor. At 3:30 p. m. today (four hours before admission), she fell down steps, striking her abdomen on the edge of a step. Did not faint, but had great difficulty in breathing. Has had severe abdominal pain for over one hour. Has had shoulder pain for one hour. She cannot take a deep inspiration. Vaginal bleeding started one hour after fall, and a large gush of blood escaped from vagina. No fetal movements felt since fall. Has infrequent cramp-like pain in lower back and groin. Blood pressure, 128/84. No fetal heart tones heard. Abdomen distended. Fundus cannot be felt. Diastasis recti present. Fetal small parts anterior and seem to be just beneath the skin.

*Vaginal Examination.*—Cervix admits one finger, not effaced, no presenting part felt in pelvis.

*Blood Count.*—Hemoglobin, 70 per cent (Sahli); red blood cells, 3,730,000; white blood cells, 34,000; polymorphonuclears, 95 per cent.

*Diagnosis.*—Ruptured uterus, dead baby; 8:45 p. m., laparotomy, abdomen full of blood and contains fetus in intact amniotic sac and placenta. Uterus contracted down,

and has a tear across the posterior surface of fundus (see specimen). Supravaginal hysterectomy done, followed by blood transfusion. Uneventful convalescence. The patient was discharged in good condition on January 2, 1935 (twelfth day).

*Pathologic Laboratory Report.\**—Two microscopic sections were examined, one taken from the myometrium adjacent to the laceration in the uterine wall. This section shows typical structure of the muscle of a pregnant uterus. The surface involved in the laceration shows desiccated blood and muscle fibers from exposure, and some minor inflammatory changes in the immediately underlying uterine tissue.

The second section evidently was taken from a location removed from the region of the rupture and shows endometrial tissue with placental syncytial cells.

The structure of the muscle tissue in both sections is of interest; and while presenting the typical characteristics of pregnant uterine muscle, is apparently distinctly abnormal in two features:

1. Many of the muscle fibers show degenerative changes, the cytoplasm being swollen and granular, with loss of many nuclei.

2. A careful estimation of the size of the fibers indicates that they are distinctly smaller in cross-diameter than the normal uterine muscle at term, as determined by measurements made on normal specimens; the average measurements in this case being fifty fibers to the millimeter, while normal specimens averaged twenty-five to thirty fibers to the millimeter.

It is my opinion that this must have been in some degree a pathologic myometrium, but there is no evidence of any local defect at the region of the rupture which was not present throughout the uterus.

#### COMMENT

In our review of the literature, we find that Estor and Pueck (quoted by Jaroschka) collected forty cases of traumatic rupture of the pregnant uterus up to 1929; to these Orthner adds one case, and our present case makes forty-two in the literature.

One of the reported cases, included in Estor and Pueck's review, that of J. B. DeLee (*American Journal of Obstetrics and Gynecology*, December, 1904), was very similar to our case in the nature of the force, in that his patient also fell through a broken step, striking on her abdomen. It differs, however, in that his patient was a gravida 14 and had had six abortions in the fourth, fifth, sixth, and seventh months, respectively, and therefore probably had a weakened uterine musculature, while our patient was a gravida 1, with no antecedent history, which would indicate probable disease of the uterine musculature.

It also differs from both Orthner's case and our own in that DeLee's case was not seen until some fifty hours after the accident and was operated on sixty hours after the trauma; while Orthner's case was seen and operated on within three hours of the accident, and ours was operated on within five hours of the trauma. As a result the patient reported by DeLee had a very stormy convalescence, but eventually a complete recovery; while Orthner's patient and our patient, who were operated on a few hours after the accident, made smooth, uneventful convalescences, both being discharged from the hospital on the thirteenth post-operative day.

\* Microscopic report by Dr. N. Evans, hospital pathologist.

This emphasizes the extreme importance of early diagnosis and operative treatment in any case of uterine rupture if our morbidity and mortality (the latter, 100 per cent in cases of complete rupture, unoperated on) are to be kept down.

The question as to whether the laceration should be repaired or a hysterectomy done, depends entirely on the conditions in any given case. As a rule, it would appear to us that a patient in the general condition in which these patients usually are, would be better served by a rapid hysterectomy than by a longer procedure with careful suture of the wound, with the possibility of a postoperative uterine hemorrhage. Moreover, these uteri are usually weakened by antecedent disease, and with the additional weakness of a scar would be particularly susceptible to rupture in a succeeding pregnancy or labor (the latter if section were not done before onset of labor).

However, in a gravida 1, who is desirous of having a child, it would be justifiable if her condition would permit. There have been some cases reported in which repair has been done and the patients successfully carried through a succeeding pregnancy.

In the majority of cases, especially in multiparae, with diseased uteri, we believe hysterectomy, as early as possible, is the procedure of choice.

#### RECENT CASES IN THE LITERATURE

After this article was written two additional cases appeared in the literature. The first, a report of "Traumatic Rupture of an Early Pregnant Uterus" by G. S. Ruder and C. G. Moore, appeared in the *American Journal of Obstetrics and Gynecology* for March, 1935:

Their patient, when first seen, was treated for threatened abortion. Eighteen hours later she presented symptoms of uterine rupture, and at operation a complete longitudinal rupture of the uterus, with extrusion of the fetus and placenta into the abdominal cavity, were found. The authors assume that the rupture occurred as a result of an indirect violence, as the patient had been riding on a merry-go-round the day before and they believe that she received a blow upon her side, although she was not aware of it.

Their report does not give any histologic findings such as might indicate preceding disease of the myometrium. . . . Would it not seem more plausible that the ride caused the onset of the abortion and that a weakened diseased uterine musculature gave way, rather than that a longitudinal rupture was caused by a blow which was not sufficient to cause the patient to notice it? Moreover, there were definite signs of a threatened abortion, and the signs of rupture did not occur until some eighteen hours after the onset of labor pains.

The second report, "Spontaneous Rupture of Uterus at Sixth Month of Pregnancy" by F. A. Smilow, appeared in the *American Journal of Obstetrics and Gynecology* for May, 1935:

Gravida 2. Three hours prior to visit, the patient tripped while ascending stairs. The fall did not hurt her; one hour later she had severe lower abdominal cramps and a slight amount of vaginal bleeding. Vomiting occurred once; eight hours after her visit, a profuse vaginal hemorrhage occurred which left her faint. Two hours later she presented evidence of shock with cold clammy skin. Pulse,

140; blood pressure, 90/60; hemoglobin, 40 per cent; red blood cells, 2,620,000; white blood cells, 16,400; entire abdomen rigid; no definite masses outlined.

At operation, large amount of blood in abdominal cavity, fetus of five months' development in abdomen. Clean, longitudinal rent in midline of the posterior surface of the uterus, extending from the fundus to level of internal os. Placenta densely adherent to anterior wall of uterus. Subtotal hysterectomy done. The patient was discharged from the hospital in two weeks. With the previous pregnancy, she had a toxemia, no convulsions; severe endometritis for several weeks after delivery.

#### IN CONCLUSION

It is of interest to note that of four cases of rupture of the uterus, the original reports of which we have had access to, three of them, namely, one by J. B. DeLee, one by E. A. Smilow, and our case, the trauma consisted of a fall down the steps.

1930 Wilshire Boulevard.

#### DISCUSSION

STERLING N. PIERCE, M. D. (1930 Wilshire Boulevard, Los Angeles).—At first glance, it is striking that most of the patients reported have survived. However, a reason for the survival is to be found in the fact that the blood vessels constrict, and thus the bleeding rapidly diminishes, or even stops entirely.

The uterine contents (the placenta, the amniotic sac, etc.), are immediately emptied into the abdominal cavity, whereupon the uterus contracts as it would following a section. Since, as is well known, the blood supply at the midline (where the rupture usually occurs) is scanty, these contractions of the uterine muscle practically stop the bleeding.

This consideration would make me believe that in cases where the placenta is inserted more toward the parametrial region, where the contractility is less and the blood vessels are much larger, the trauma would result in fatal exsanguination.

Concerning the etiology, I would suggest that the weakness at the placental site is to be explained by the fact that the placenta, with its excrescences, digs deep holes into the uterine muscle, so that the muscle is thinned and divided and, with the increased vascularity, is in a condition to tear under impact.

As to therapeutic procedure, I should like to add this comment: much depends on the location of the rupture. If it occurs in the fundus, a repair of the laceration is quick, and is done with less shock. If the tear is located in the lower segment, transverse hysterectomy is indicated.

Palliative measures must be considered and might be life-saving; such as the application of the Momborg belt, or clamping the uterine arteries through the cervix until the patient can be relieved of shock and prepared for surgery.

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J. MORRIS SLEMONS, M. D. (523 West Sixth Street, Los Angeles).—Aside from the fact that Doctors Lazard and Kliman have added a case of exceptional interest to obstetrical literature, they have raised questions of considerable scientific importance. It is difficult, for example, to accept the correctness of the hypothesis they adopt. The amniotic fluid, it seems to me, is less likely to promote such an accident than to protect pregnancy against it.

Certainly, the "solid" abdominal viscera, upon occasion, have been ruptured by blows. Accredited instances are at hand of traumatic rupture of the kidney, the liver, and the spleen. The bladder, to be sure, is more likely to be ruptured when full; but is this not partly due to its more exposed position?

A blow upon the abdomen has caused intussusception of the small intestine; and this phenomenon, we are told, may be invoked in the laboratory at will by pinching the bowel of the rabbit with an hemostatic clamp. That experiment, at least, suggests another mechanism as responsible for traumatic uterine rupture. In this particular instance there is evidence of an unusually irritable uterus: the patient was treated previously for threatened premature

labor. May not the blow upon the abdomen have excited violent contractions which, in turn, tore open the weak area in the uterine wall? Spastic peristaltic waves have ripped apart an intestinal anastomosis before healing became firm.

This comment merely represents another point of view. At present the true explanation remains beyond us. Perhaps we would approach that objective more nearly if the authors were willing to review cases of rupture of various abdominal organs, attributable to trauma. Such study, almost surely, would repay the time and energy involved.

The treatment responsible for this woman's recovery was that which should always be employed in the circumstances, whether the complication be seen early or late. Otherwise the issue will be fatal.

✱

LEON J. TIBER, M. D. (3875 Wilshire Boulevard, Los Angeles).—It is surprising that more cases of traumatic rupture of the uterus in advanced pregnancy are not reported, especially considering the tremendous number of automobile accidents.

Is it not possible that in the case of a visible fall, as on some steps, the attempt to break the fall so contorts the uterus that there is a compression area where the uterus is flexed, and, on return to normal, this portion of the uterus presents itself as a weak spot? The authors have pointed out the intra-uterine pressure spreads equally in all directions; therefore, if a rupture is to occur, it should happen at this point of weakness.

It is interesting to note that, in the reported case, there was a demonstrable pathologic variation of the uterine muscular fibers. In the other cases cited it is assumed, from the case histories of previous infections and abortions, that the rupture of the uteri occurred at a pathologic point.

My own experience in the treatment of ruptured pregnant uteri has been with three cases of previous classical cesarean section complicated by hard and neglected labors, none due to accidents. In properly selected cases, one may attempt to repair the tear. However, a subtotal hysterectomy assures a more rapid and safe convalescence. One must always remember that a uterus that ruptured once during pregnancy is certainly more liable to rupture in succeeding pregnancies, other conditions remaining the same. An early diagnosis with active treatment is necessary.

Has there ever been any x-ray diagnosis in these cases—a fluid level of the blood in the peritoneal cavity, an extruded fetus or otherwise irregularity of uterus? These might help to clear up a doubtful diagnosis.

## RHINOPHYMA\*

By WINSTON C. CRABTREE, M.D.  
San Diego

DISCUSSION by Philip K. Allen, M. D., San Diego; F. G. Novy, Jr., M. D., Oakland; K. C. Brandenburg, M. D., Long Beach.

**RHINOPHYMA** is a condition perhaps best described by the single term "monstrous hypertrophy of the end of the nose." A fairly accurate clinical picture of the condition is presented by merely listing the descriptive terms often used in naming the disease: whisky nose, nodular nose, copper nose, elephantiasis of the nose, growing nose, acne hyperplastica, fibroma molluscum and cystadenofibroma of the nose.

### RHINOPHYMA A DISEASE OF THE SKIN

Rhinophyma being primarily a disease of the skin, probably concerns the dermatologist more directly than the rhinologist. However, inasmuch

as the only adequate treatment is surgical, it behooves the rhinologist to familiarize himself with all the phases of this disease in order to be able properly to perform the prescribed surgical measures.

It is at once apparent that the disfigurement and humiliation caused by rhinophyma is of the utmost concern to the person afflicted. In one instance, a case of a woman, the condition caused such extreme personal embarrassment as to result in threatened suicide. Many of the sufferers are led to believe there is no cure for this ugly affliction. That is most unfortunate, because the administration of proper treatment with satisfactory results is rather simple.

With but few exceptions, rhinophyma occurs in the middle or later years of life, by far the greater percentage coming between the ages of fifty and seventy years. It is far more common in the male than in the female, the ratio being approximately twelve to one.

To offer a lengthy discussion as to the etiology of rhinophyma does not fall within the scope of a rhinologist. The condition frequently is considered attributable to chronic alcoholism—at least in the minds of the laity. This common theory is entirely untrue and without foundation. It is perhaps more logical to attribute the chronic alcoholism to rhinophyma than the reverse when the two conditions coexist in the same individual. One author<sup>1</sup> suggests that in many instances there is apparently a congenital predisposition to rhinophyma in the so-called wide-pored individuals. Another states that the nose is the most constantly exposed portion of the entire body, this fact possibly lending to the development and gradual progression of the condition. However, it is generally agreed that the type of tissue present is the etiologic factor of primary importance. That rhinophyma is frequently a sequel or terminal stage of acne rosacea, is an accepted fact borne out by the similarity of the pathologic pictures of the two diseases.

### ACNE ROSACEA

Acne rosacea is a subacute or chronic congestive disease of the nose and flush areas of the face. It begins as a passive hyperemia, which is followed later by dilatation and proliferation of the superficial capillaries. Pustules are present. Accompanying the blood-vessel changes is an hypertrophy of varying degree of the cutaneous and subcutaneous tissues. In some instances the hypertrophy may attain a sufficient degree to produce more or less lobulated masses, thus deforming the normal structure of the nose. Also, the pores become patulous and either sebum or pus, or both, may be expressed from them. This stage is known as rhinophyma. Please bear in mind that this process of development is very slow, the progression covering a period of several years, varying from five to twenty.

Histologically, early acne rosacea presents a dilatation of the capillaries with newly formed blood vessels, the increased blood supply resulting in edema and overnourishment of the connective tissues. As the disease advances, deeper vessels

\* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.





Fig. 1

Fig. 2

Fig. 1.—An unusual case of rhinophyma with similar pathological changes affecting chin—gnathophyma. (Courtesy of Dr. Wiley M. V. Sams.)

Fig. 2.—Rhinophyma which has undergone carcinomatous degeneration. (Courtesy of Dr. F. G. Novy, Jr.)

are involved, which may become surrounded in areas by thick mantles of infiltrate made up of lymphocytes, epithelioid cells, and occasional giant cells. The condition being chronic, and one which is prone to recurrences, leads, therefore, to considerable hypertrophy of the connective tissue and sebaceous glands, which together comprise the first signs of the later stage, known as rhinophyma. Rhinophyma, histologically, consists of a marked hyperplasia of sebaceous glands and connective tissue, plus many of the cellular elements found in acne rosacea.

#### SURGICAL TECHNIQUE

The surgical removal of the large nodular masses is a simple procedure. Correct technique in administering the proper local anesthetic, using two per cent novocain, is accurately described by Labot,<sup>2</sup> the block infiltration being made chiefly along the borders of the nasal pyramid. Using a knife or razor, as preferred, the hypertrophic masses of tissue are readily pared off with exact precision, extreme care being taken to obtain proper reshaping of the nose. Gordon New<sup>3</sup> suggests placing the index finger of the left hand in each nostril as the paring is performed, thus permitting greater accuracy. Rather profuse bleeding is readily controlled by pressure, plus the use of hemostatic solutions, if such are desired.

Considerable emphasis should be placed on the importance of not shaving too deeply, and for two reasons: first, to avoid injury to the nasal cartilages, and, second, to preserve a thin layer of subcutaneous tissue and many islets of epithelial tissue, which are necessary for proper epithelization. These small islets of epithelial tissue are from the sebaceous gland rests, and are plainly visible as the surgery is performed if time is taken to slow the bleeding. It is also important to preserve a thin rim of epithelium around the nares in order to prevent disfigurement from resultant contractions incident to cicatrization. Vaseline gauze, hot compresses or xeroform gauze dressings are to be used with tinfoil or a thin cast of dental wax, necessary for holding the dressings in snug position over the nose.

Healing with proper epithelization will generally occur with rather amazing rapidity. Dress-



Fig. 3

Fig. 4

Figs. 3 and 4.—One of author's cases of rhinophyma showing "before and after" surgery stages.

ings may be omitted after seven to ten days as a rule. The use of tincture of benzoin, 25 per cent silver nitrate, trichloroacetic acid, and scarlet-red ointment, are all commendable for use postoperatively in dealing with granulation and scar tissues. One dermatologist<sup>4</sup> recommends x-ray and sometimes carbon dioxide snow for postoperative treatment if granulations or scarring are in excess.

#### OTHER PROCEDURES

Treatment of rhinophyma by galvanocautery or electrocoagulation should be rejected as unreliable and dangerous, because of possible damage to underlying bone, cartilage, and nasal mucous membranes.<sup>5</sup> The extent of the necrosis which may follow use of the cautery cannot be accurately gauged at the time of operation. Also there may result an extensive destruction to the epithelial tissue, which must be preserved to obtain a proper and prompt healing. Electrocoagulation has been suggested by some men as useful during<sup>6</sup> the operation for hemostasis.

The literature of several years ago will reveal frequent descriptions of the use of skin flaps from the forehead, or grafts from the arm, as necessary in procuring the proper cosmetic end-result in the treatment of rhinophyma. Such measures have been almost entirely discarded. The use of the graft is now confined only to cases of rhinophyma with carcinomatous degeneration, or in instances where x-ray, radium, or cautery have been employed inadvertently, with a resultant destruction of too much of the nasal tissues.

X-ray therapy is commonly employed by the dermatologist in treating acne rosacea. Thus it follows that the use of x-ray in treating rhinophyma may be of value particularly in diminishing the folliculitis, which may often be severe. Such a procedure is frequently very useful as a preoperative measure in better preparing the case for surgery, whereby sometimes 30 to 40 per cent involution of the tumor mass may be obtained.<sup>7</sup> In mildly developed rhinophyma, the use of x-ray therapy in clearing the folliculitis may allay or even entirely remove the necessity for surgical



treatment. Radium, likewise, has its place in similar therapy. This phase of the treatment of rhinophyma is, of course, to be placed in the hands of the dermatologist. Thus, stress should be placed on the complete coöperation between dermatologist and rhinologist in procuring the best results.

#### IN CONCLUSION

In concluding, the following points demand emphasis:

1. The actual causative etiology of rhinophyma is somewhat obscure, though the condition is recognized as a benign sequel of acne rosacea.
2. Adequate surgical treatment of rhinophyma is a relatively simple procedure.
3. The use of skin grafts, cautery, and electrocoagulation have been, in the main, discarded.
4. X-ray is very valuable in both pre- and post-operative treatment, and in some instances may be sufficient treatment, to the point of excluding surgery.
5. Full coöperation between dermatologist and rhinologist is essential in all cases of rhinophyma.

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#### REFERENCES

1. Seelig, M. G.: *Surgical Clinics of North America*, 5:1385.
2. Labot, Gaston: *Regional Anesthesia*. W. B. Saunders Company, 1930.
3. New, Gordon: *Surgical Clinics of North America*, 1:1395.
4. Allen, Philip K.: Personal communication.
5. Maliniak, Jacques W.: *Arch. Otolaryn.*, 31:273.
6. Marin, Alberic: *Canad. M. A. J.*, 25:589.
7. Sams, Wiley M.: *Arch. Dermat. and Syph.*, 26:836.

#### DISCUSSION

PHILIP K. ALLEN, M.D. (314 Medico-Dental Building, San Diego).—I am most interested in this paper from a standpoint of therapy, particularly the cosmetic end-result. Inasmuch as rhinophyma does not endanger life nor impair health, the appearance is of prime importance. The condition is by no means a new one. It was known to Hippocrates and was described by the early Arabians. In more than two thousand years innumerable types of treatment have been advocated, most of them without real therapeutic value.

The nonsurgical treatment of rhinophyma has proved unsatisfactory. Local applications which are not caustic nor destructive may impede the progress of the disease, but do not reduce the hypertrophy. X-ray and radium therapy have, on the whole, proved disappointing, although occasionally pleasing results have been reported. McKee states in his book, "X-Ray and Radium in the Treatment of Diseases of the Skin": "X-ray (and radium) seem to be of very little real service in rhinophyma." Acne-like lesions do disappear under x-ray treatment, and the sebaceous glands will become smaller and less active. In a markedly enlarged nose, however, the limited shrinkage that can be effected by x-ray does not give satisfactory end-result. Its usefulness is limited, therefore, to the early case in preventing further hypertrophy. Where considerable enlargement has taken place other forms of treatment, mainly surgical, are indicated.

Various types of surgical measures have been used. Acids, caustics, cautery, and scarification have all had advocates. It seems odd that the simple and most obvious procedure of carving the nose down to the desired size and shape should be left to comparatively recent times.

The good results in such a simple sculptural operation are due to the anatomy of the condition. Removal of hypertrophic tissue leaves sufficient basal epidermal cells to insure rapid and complete epithelialization.

I agree with the essayist that the best cosmetic results are to be obtained by surgical excision of the hypertrophic

tissue; but I would suggest, as an aid to prevent subsequent regrowth, the use of the x-ray as soon as epithelial regeneration has taken place.

✽

F. G. Novy, Jr., M.D. (411 Thirtieth Street, Oakland). Doctor Crabtree should be commended on emphasizing the simplicity of the surgical treatment of rhinophyma. The use of skin grafts and complicated surgical procedures are unnecessary, as epithelialization takes place rapidly from the remains of the sebaceous glands.

I do not agree with the author regarding the use of electrodesiccation. If this modality is used with a low current and care, good results may be obtained. Klauder (*Arch. Dermat. and Syph.*, 33:885, May, 1936), recently reported a satisfactory technique. He inserts the electrodesiccating needle (unipolar method) into the mass, and a low current is then turned on until a small area is blanched. This is then curetted until bleeding occurs, when another area is treated or the same area is again treated if further destruction is desirable. The advantages of this method are that the operation is nearly bloodless and the cosmetic result compares favorably with surgical excision.

✽

K. C. BRANDENBURG, M.D. (110 Pine Avenue, Long Beach).—We are indebted to Doctor Crabtree for presenting us with a simple but effective remedy for a most disfiguring condition which, though it does not endanger life, may render existence extremely unpleasant to the individual suffering from this hideous deformity of the nose.

It is surprising that the ingenious expedient of shaving off the redundancy has not been resorted to before; but, as with so many other simple procedures, we must be shown by someone with Doctor Crabtree's courage and good sense.

The importance of rehabilitating these individuals is much greater than anyone who has not suffered from such a disfiguring condition can realize. As is also the case with crossed eyes, these unfortunate individuals are frequently highly sensitive about the matter and find it a marked social disability.

The knowledge that an effective treatment is available will be most welcome to wearers of "whisky noses."

#### SCABICIDAL DRUGS: AN EXPERIMENTAL STUDY\*

By H. J. TEMPLETON, M.D.

AND

H. V. ALLINGTON, M.D.

Oakland

DISCUSSION by George V. Kulchar, M.D., San Francisco; Hiram E. Miller, H.D., San Francisco; Samuel Ayres, Jr., M.D., Los Angeles.

SCABIES is a disease whose treatment we generally approach quite confidently, feeling that we have in sulphur a near-specific which, in the great majority of cases, is rapidly curative. However, we have all had the experience of treating patients whose scabies was cured only with great difficulty, even though not complicated by irritation from the sulphur and though the balance of the family were properly treated and the clothing adequately sterilized. Such experiences have modified, to a certain extent, our former cocksure attitude in regard to the ease of curability of this disease.

#### KINGSTON'S STUDIES

This attitude was intensified, and the present experimental work stimulated by an interesting

\* Read before the Dermatology and Syphilology Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

TABLE 1.—Survival Times of *Acarus Scabiei* in Various Remedies

Tap water .....	8 days+
Vaselin, white .....	50 hours
Sulphur precipitate, 8 per cent in vaselin .....	40 hours
Sulphur, colloidal, 10 per cent in vaselin <sup>1</sup> .....	15 hours
Sulphur, colloidal, 5 per cent aqueous solution <sup>2</sup> .....	5 hours
Scabicide <sup>3</sup> .....	1 hour, 5 min.
Mitigal <sup>4</sup> .....	50 min.
Balsam Peru, 8 per cent in vaselin ....	30 min.
Styrax <sup>5</sup> .....	30 min.
Creolin, 1 per cent in vaselin .....	1 hour, 10 min.
Betanaphthol, 2 per cent in vaselin ....	1 hour, 5 min.
Pyrethrum Ointment <sup>6</sup> .....	21 hours

<sup>1</sup> H. K. Mulford Company, San Francisco.<sup>2</sup> Associated Physicians' Laboratory, San Francisco.<sup>3</sup> Upjohn Company.<sup>4</sup> Winthrop Chemical Company.<sup>5</sup> B. Styracis Liquid 14.

Ol. Olivae.

Spts. Vini Recti aa 20.

M. Sig.

<sup>6</sup> Upsher Smith.

article by Kingston<sup>1</sup> entitled "An Outbreak of Scabies in a Mental Hospital." Using an apparently adequate and careful technique of treating scabies by means of Sulphur Ointment B. P., he came to certain discouraging conclusions, which I will quote:

Out of ten certain cases of scabies in mental patients, not one was cured by two courses of sulphur ointment treatment. A total of thirty-three courses of treatment resulted in five cures and five failures.

Kingston then performed some interesting experiments testing the scabicial powers of various antiscabetic remedies. He dug out of patients burrows, active living female acari, and imbedded them in different remedies. These acari were then observed under the microscope until all movements of extremities and viscera had ceased, which point was taken to indicate death. His results are given in Chart 1.

## AUTHORS' STUDIES

Inasmuch as Kingston did not study many of the scabicial remedies in use in this country, we have performed similar experiments with different preparations.

Our method of procedure consisted of removing acari from the burrows of untreated patients,

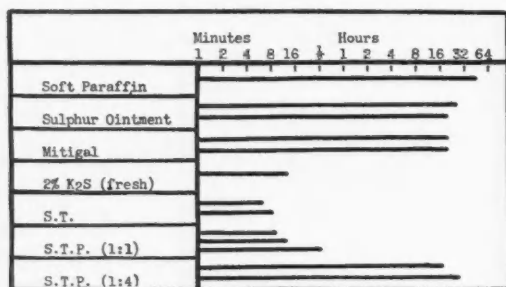


Chart 1.—(After Kingston.) Survival times of sarcoptes in various media (logarithmic scale). S. T. 1 per cent solution of sulphur in oil of turpentine B. P. S. T. P. (1:1) equal parts of S. T. and liquid paraffin B. P. S. T. P. (1:4) one part of S. T. to four parts of liquid paraffin B. P.

and imbedding four to eight lively specimens under a cover glass in each remedy to be studied. These were observed microscopically until all movements ceased. The survival times are indicated in Table 1.

We are perfectly aware that the scabicial property of any drug *in vitro* does not necessarily parallel its clinical value. The discrepancy between the proved clinical worth of sulphur and its slow killing time in our experiments might be explained by the theory that it is changed to the nascent state by the acids of the skin when it is applied to a patient. This could not hold true, however, of all of the other drugs studied. Therefore, it is our belief that the method of determining the scabicial power of drugs *in vitro* is of practical value, and merits further attention in the search for more effective remedies.

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## REFERENCE

1. Kingston, Frank E.: An Outbreak of Scabies in a Mental Hospital, The Lancet, No. 15, Vol. 11, p. 815 (Oct. 12), 1935.

## DISCUSSION

GEORGE V. KULCHAR, M.D. (450 Sutter Street, San Francisco).—The evaluation of scabieticidal preparations by clinical methods is not entirely satisfactory, and for several reasons. Patients frequently do not carry out the routine properly, particularly in regard to sterilizing their wearing apparel, bed linen, and so forth, and reinfections are seen commonly. The thoroughness with which the patient applies the preparation and the thickness of the epidermis seem to be factors in the therapeutic efficiency of the commonly used scabieticides. To a certain extent one can prove the efficiency of a scabieticidal preparation by recovering the acari from lesions and determining, by microscopic examination, whether they are dead. At the same time, however, if one searches diligently in a patient who gives the clinical impression of being cured, an occasional live acarus can be recovered. The method proposed by Doctor Templeton certainly provides a more accurate means of evaluating scabieticidal preparations.

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HIRAM E. MILLER, M.D. (384 Post Street, San Francisco).—The authors' experiments with various antiscabetic remedies are most interesting. Their experimental results, however, do not coincide with clinical experience. It is well known, as they state, that sulphur is chemically changed when it comes in contact with the skin, and its efficacy in destroying the acarus of scabies is probably greatly enhanced by this change. Ringworm fungus will thrive on a culture media containing three per cent sulphur, but tinea circinata can generally be easily cured with a three per cent sulphur ointment. These experimental results would erroneously infer that one per cent creolin is much superior to sulphur in the treatment of scabies. I should have thought that petrolatum would mechanically destroy the acarus in a very short period of time.

This work is most instructive and worth while, and I am certain that the authors are fully cognizant of all the points that I have mentioned.

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SAMUEL AYRES, JR., M.D. (2007 Wilshire Boulevard, Los Angeles).—As Doctors Templeton and Allington have stated, the problem of treating scabies is by no means a closed chapter, and they have offered us a rational method for improving our therapy of this common and occasionally obstinate disease. We have never depended upon sulphur ointment alone, but have employed the formula long in use at the Massachusetts General Hospital:

Betanaphthol .....	2
Sublimed sulphur .....	4
Balsam Peru .....	15
Petrolatum .....	15

It is interesting to note, from the table presented, that both betanaphthol and balsam Peru in concentrations much less than employed in this formula are among the most active scabidical drugs tested. In this case the experimental findings confirm our clinical experience of the remarkable efficacy of this particular combination of substances. By further experimentation along the lines suggested by the authors of this paper, however, it is entirely reasonable to assume that a more efficacious and less irritating remedy will be found.

### URINARY TRACT INFECTION WITH "CLEAR URINE" \*

By JAMES R. DILLON, M.D.  
San Francisco

DISCUSSION by Robert V. Day, M.D., Los Angeles;  
F. S. Dillingham, M.D., Los Angeles; Charles P. Mathé,  
M.D., San Francisco.

IT is surprising how many times medical men fail to recognize urinary tract infection in fairly typical clinical pictures because there is no pus in the urine, which may be macroscopically clear. This occurs particularly in both the acute and chronic coccal kidney infections, where the microscopic examination of the urine may show only a few red cells, few or no pus cells, and by the ordinary routine bacteriologic examination, few or no cocci. The urine in acute bacillary infections is practically always cloudy macroscopically, but microscopically may show only a few or no pus cells; the cloudiness being due to bacilli only, which is often considered a contamination, and the patient is treated as a "flu" condition, or possibly extensive examinations are carried out to differentiate typhoid, malaria, and other infective conditions, with a neglect of the urinary tract. Chronic bacillary infections also frequently occur with macroscopically clear urines which reveal no pus microscopically, and few or no bacilli are reported by the bacteriologist. This report is presented for the consideration of the diagnosis and etiology of various clinical pictures rather than treatment, it being evident from the histories of patients of repeated urologic examinations that diagnosis in this type of case is frequently missed by the urologists as well as internists. Nor does it include the cortical renal lesions or the so-called carbuncle of the kidney; nor the perirenal abscess types.

About fourteen years ago my attention was first attracted to the possibility that sometimes bacteria appear in the urine in "showers" during the acute stage, which may last only a few hours, and with three or four voidings the urine may be entirely clear of pus and with relatively few or no bacteria present.

#### REPORT OF CASE

CASE 1.—A medical woman, actively practicing with her husband, also a medical graduate, complained of a pain in her right side, ran a low-grade temperature, rarely reaching 100 degrees, except during the acute attacks. The pain and tenderness seemed to be definitely in her right kidney, but cystoscopic examination and pyelograms by three different urologists, over a period of one year,

showed normal pyelograms and negative urine reports from the bacteriological laboratories. One of the urologists passed four catheters up the right ureter, three of them stopping just below the pelvic brim at the site of an apparent ureteral stone shown in the x-ray, but at surgery this proved to be a phlebolith, and she continued to have her attacks. She resided about one hundred miles from San Francisco, and would have an attack (at intervals from two to six weeks) of rise in temperature, increased pain and tenderness, burning and frequency of urination. Samples of the urine during this onset would be loaded with pus and colon bacilli. She would start by automobile with the onset of the attack, and by the time she reached my office, in about three and one-half hours, voiding three or four times on the way, a catheterized specimen would be crystal-clear and the bacteriological laboratory report would be negative. On the eighth trip pus and colon bacilli were found in a catheterized specimen, and an immediate cystoscopic examination and collection of segregated urines showed the left kidney sterile and the infection entirely in the right kidney. Her tonsils had been removed and all possible foci checked by myself, as well as the two preceding urologists. Doctor Rigdon had been in consultation several times, and we finally decided it was a blind abscess in the renal cortex, which at times discharged into the renal pelvis. At operation we thoroughly exposed the kidney, pelvis, upper end of the ureter pedicle, and finally did a nephrotomy, exposing the pelvis from pole to pole. Cultures taken of the urine in the pelvis, on opening it, and sections of renal parenchyma were negative for signs of infection or pathology. She made an uneventful recovery, but I carried a guilty conscience until I met her several years afterward and she thanked me again, stating she had never had another attack after the operation.

#### OTHER TYPES

Cases of urethritis in males with coccal infections, showing a very slight purulent or mucopurulent discharge, or merely a glueing of the meatus in the morning, are sometimes treated over an indefinite period as a chronic gonorrhea or gleet. The two- or three-glass test may show all crystal-clear, with the first glass containing a few shreds, or possibly presenting a faint haze. The bacteriologic report of the second or third glass, as ordinarily done, will generally be negative, few or no pus cells, few or no red cells, or a few described bacteria, either coccal or bacilli, and if there is a scanty growth on the cultures, the opinion will be expressed "probably contamination," and the patient goes on being treated as an urethritis. I have had bacteriologists make the statement to me, when their cultures are slightly positive, that they were probably contaminations because the smears of the sediment did not show any pus. Men will also frequently appear complaining of frequency of urination, with slight bladder-neck sensitiveness or consciousness, revealing a macroscopically clear urine with a negative pus and bacteriologic report, and if the patient has no chronic prostatitis, he is lucky if he does not have one immediately made by repeated massaging. Or, if he is fortunate in having his prostate acquitted at the first trial, he may be retried and condemned as a neurotic. These bladder-neck irritabilities occur in both men and women, who suffer for indefinite periods because a diagnosis and cause is not ascertained. There are other clinical pictures appearing as a septic condition, with no symptoms referable to the urinary tract, and presenting macroscopically clear urine.

\* Read before the Urology Section of the California Medical Association at the sixty-fifth annual session, Coronado, May 25-28, 1936.

## BACTERIOLOGIC LABORATORY: ITS PLACE

In recent years I have come to depend less on the professional bacteriologic laboratories for my urine examinations, especially in the case of the ambulatory patient who comes to my office. Practically all of such reports are based on the smears and cultures made from the sediment of one centrifuge tube of urine. If the infective products are sufficiently diluted in the urine that it is macroscopically clear, those products will be very likely missed in the study of the centrifuged sediment of one tube of urine. I have trained my office nurse to concentrate the sediment of the entire collection of catheterized urine in the female and the third glass of voided urine in the male until she can plainly see a film of sediment in the bottom of the centrifuge tube. This is done by filling the centrifuge tube, vigorously centrifuging it and pouring off the supernatant urine and refilling it. This is repeated until the sediment of the entire specimen, amounting to six or eight ounces, as a rule, is concentrated in one tube. The supernatant urine from the last filling is poured off quickly, holding the tube in an inverted position until the smear is made from the scrapings from the bottom of the tube. The smears are fixed and stained with 1 per cent methylene blue, and for most cases we are only interested at this time in whether infection is present and whether it is coccal or bacillary. If present, it is then incumbent upon us to not only make a further urologic study by intravenous urography, cystoscopy, and possibly retrograde pyelograms, but also to determine the etiologic factor and its removal. Women frequently will be apparently cured of an urinary-tract infection, and the urine may be reported free of pus and bacteria, but they may continue to complain of bladder irritability, frequency, and urgency. Cystoscopic examination will reveal a normal-appearing bladder, but the distal side of the vesical orifice will show an inflammatory condition of the urethral mucosa, or, if of long standing, may show a fringe of polypi.

## RÔLE OF ALVEOLAR INFECTIONS

My personal opinion is that infection and absorption of the alveolar process is the source of most of our upper urinary tract infections. I try to avoid the term "infected teeth," which is a dental problem, but an infected alveolar process, signifying really an osteomyelitis, is a medical and surgical problem, and we must seek those dentists who recognize this fact to cooperate with us in the proper surgical treatment. We must train ourselves in the study of x-ray dentures, insist on inspecting them ourselves, and follow up with further x-ray studies in three to six months' intervals to see that pathologic conditions in the alveolar process have really cleared up, before we are qualified to challenge the statements of those who are experienced in this study and believe such foci to be causative factors. Our search for foci should not end here, but all possible primary areas of infection, such as tonsils, sinuses, middle ear, skin, bowel, rectal and genital, etc., should be eliminated. Also, there is evidence that the primary infection of the kidneys may be very tran-

sient, clearing up spontaneously where the ureteral drainage is adequate; but it may then continue indefinitely as a trigonitis and urethritis, and serve as a focus for blood-stream or lymph-stream dissemination, or direct ascent by the ureter, and so produce recurring attacks of pyelonephritis after the primary focus has been removed.

The following are a few case histories illustrating the various clinical pictures of "clear urine" with urinary tract infection:

## REPORT OF CASES

CASE 2.—A husky Danish ambulatory longshoreman complained of frequency of urination with occasional urgency. Examination negative, except for the concentrated sediment of a "clear urine" showing a streptococcus, later confirmed by the bacteriologist as *Streptococcus viridans*. He would be temporarily relieved by bladder irrigations and urinary antiseptics, and was finally completely cleared up after several recurrences by getting a marked pyorrhea properly treated.

CASE 3.—A ten-year-old school boy (one of four in the last year) complained of urgency, frequency, and feeling tired. Urine was clear, but showed trace of albumen, occasional casts and red cells, and the concentrated sediment showed a streptococcus, also confirmed by the bacteriologist. Cystoscopic examination and pyelograms were negative. He was put on urinary antiseptics, and a week later complained of a "gum boil." With the removal of a deciduous tooth, his urinary tract spontaneously cleared of albumen, blood, and streptococci.

CASE 4.—A fifteen-year-old girl (the daughter of a medical man), strong, athletic, ambitious, but all her life had been subject to attacks of chills, fever, and prostration, every two or three months. She had been examined by internists, until one discovered she had a "floating right kidney" and suggested a cystoscopic examination, which disclosed a catheterized urine free of pus, but hazy with colon bacilli coming from the dilated functionless left half of a "horseshoe kidney." She was cured by nephrectomy.

CASE 5.—A Jewish woman, age sixty-five, complained of frequency and urgency; also had a great liking for "sprees" on barbitol drugs. She had been pronounced cured of a urinary-tract infection, but continued to suffer bladder symptoms for many months and was treated more as a mental case. Examination of the concentrated sediment of a catheterized specimen of "clear urine" showed a trace of pus and a fair smear of colon bacilli. Cystoscopic examination showed normal kidneys, but a fringe of polypi on the urethral edge of the bladder neck. Removal of all her remaining teeth, about ten, around which there was marked pyorrhea, fulguration of the polypi, followed by a few urethral dilatations and bladder irrigations with urinary antiseptics, cleared up the urinary tract entirely.

CASE 6.—A young Italian, age twenty-one, presented an acute septic condition, temperature 104 degrees, with pain in the right side, diagnosed appendicitis. A normal appendix was removed, but the septic condition continued for four months, with symptoms apparently localizing in the right kidney. Absolutely clear urine persisted throughout the entire course, except on one occasion, when a *Streptococcus hemolyticus* was obtained. A diagnosis was made by the urologist, from the pyelogram and intravenous urogram, of a *Streptococcus cellulitis* around the middle calyx of the right kidney. Through lack of cooperation, an x-ray denture was not obtained until he developed a toothache at the end of the four months of septic temperature, disclosing an abscess on the root of another tooth, on the extraction of which his temperature dropped to normal within forty-eight hours, where it has since remained.



CASE 7.—A woman, twenty-nine years old, complained of urgency and frequency shortly after the onset of a crop of boils on the buttocks. The concentrated sediment of a "clear urine" showed a good smear of staphylococci with no pus. It cleared up with bladder irrigations and urinary antiseptics along with the disappearance of the boils. Three years later she again had the same bladder symptoms, with staphylococci in a "clear urine." This time she complained of pain and soreness in the rectum, and on the removal of an anal fissure and a rectal cryptitis by a proctologist, her attending nurse volunteered the statement that her bladder capacity had increased from five to twelve ounces within forty-eight hours, and along with the urinary antiseptics and bladder irrigations her urine is again sterile.

#### CONCLUSIONS

1. Foci of infection play an important part in the causation of urinary tract infections.

2. In vague septic conditions more attention must be paid the urinary tract as a possible location of infection, in spite of the negative clinical examination of the urine.

3. Dentists should be taught to recognize more of the medical and surgical aspects of an infected alveolar process.

4. Before condemning patients with bladder symptoms with "clear urine" as neurotics, we should send larger quantities of bladder urine to the bacteriologist with the request that the examination be made on the concentrated sediment of the entire specimen.

5. Children should be watched more closely during the tooth-cutting age, and attention given to dental care and hygiene. Also, during the septic reactions, the urinary tract should not be forgotten, and more exacting examinations should be made for the presence of bacteria in the "clear urine."

490 Post Street.

#### DISCUSSION

ROBERT V. DAY, M.D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Dillon has brought to our attention some particular phases of urinary infections which are often overlooked.

I should like to emphasize his meaning by using the term "seemingly clear," or "nearly clear urine." In such cases the specimen is apt to be of low specific gravity and, hence, exceedingly diluted. By greatly restricting the intake of fluids for twelve hours, one can frequently obtain a urine of a specific gravity of 1.020 or so, in which case the amount of pus is usually sufficient to show cloudiness to the naked eye except in those cases where only a few bacteria are present in the urine. These cases are often very baffling until observed over a considerable period of time.

Our first duty is to determine the presence or absence of infection by repeated urine examinations and, if present, to identify the organism responsible for the infection. For this purpose, both stained smears (preferably a Gram stain) and cultures are invaluable.

If urinary infection is demonstrated, then one may proceed methodically to discover each and every anatomical focus of infection by cystoscopic and other recognized urologic procedures.

✱

F. S. DILLINGHAM, M.D. (1016 Story Building, Los Angeles).—In the past a great deal of thought has been given to pyelonephritis, and today Doctor Dillon has called our attention to a phase which, kept in mind, may save a long course of illness by promptly leading to the correct diagnosis. In 1916 Crabtree and others noted that, early in an attack of pyelonephritis, there may be a great drop in phthalein output due to a cloudy swelling, probably involving the tubular portion which is short-lived, and which goes on to complete recovery, as shown by the return of kidney function and even on microscopic sections.

It may be our misfortune to see these patients only in the intervals as in the case of the doctor's wife, who was only three and a half hours away, and not until the eighth examination were bacteria found. Is it possible that in Doctor Dillon's extensive exploration of this patient's kidney some minor kink was relieved, or nerves or lymphatics cut that resulted in freedom from attacks?

When the specimen is macroscopically clear in a suspected patient, Doctor Dillon's suggestion of concentrating the smear to be examined is as important as running the centrifuge at high speed for a longer interval when searching for tubercle bacilli. Also, the freshness of the urine specimen is of importance, as many come with specimens twenty-four to forty-eight hours old, in questionable containers, that are macroscopically cloudy, and yet after proper cleansing a fresh specimen is found to be free of pus, blood or bacteria.

In 1917, E. H. Stephens stated that simple bacilluria may exist without cells in the urine. Livermore found stasis to be the chief cause of renal infection; as there may be foci, but without stasis, there will be no infection unless there is an overwhelming amount of bacteria. Rovsing found that infection could not be caused without retention or trauma.

In 1916, Eisendrath and Kahn found that infection travels from the bladder to the kidney and perinephritic tissue by way of the lymphatics in the wall of the ureter and not along its mucous membrane. The lymphatic capillaries of the periureteral sheath play a most important part in ascending infection. Franke found that the lymphatics of the ascending colon communicate with those of the right kidney. Cystitis and renal infections following gynecologic operations take place by way of the lymphatics. With care not to cause trauma, emulsions of bacteria were injected into the bladder; (*Bacillus coli*, *Staphylococcus aureus*, *Proteus vulgaris*, gonorrheal pus). Inflammatory infiltrations followed the course of the lymphatics, beginning in the submucous layer of the bladder, especially around the smaller blood vessels in this layer, and this holds true for the lower ureter. Higher along the ureter, in addition to the submucous infiltration, there is infiltration around and in the walls of the blood vessels of the periureteral sheath. Later the other coats become invaded from without inward, the mucosa remaining intact until the infection is well advanced. In the kidney pelvis, the infiltration is seen first in the subpelvic areolar tissue, and again around the blood vessels, the overlying mucous membrane remaining intact. In the kidney the infiltration is seen first around the renal vessels which pass into the parenchyma. In the cortex, between the tubules and around the glomeruli, and as the infection advances, the medulla is invaded in the same intertubular manner, and finally infiltration breaks into the lumen of the tubule. The infiltration follows closely the lymphatics which allow of communication between the cortex and those penetrating the true capsule which, in turn, communicate with the perinephritic tissue. They are convinced, as Bauereisen and others assert, that there is free communication between the lymphatics of the bladder and of the ureter, and that the lymph current is upward. The connecting link between the lower ureter and those within the kidney is along the lymphatics of the subpelvic areolar tissue which surrounds the blood vessels as they enter the kidney tissue. In none of the laboratory animals were the bacilli recovered from the heart's blood. Lymphatics of the lower genito-urinary tract, David MacKensie and A. B. Wallace (*Journal of Urology*) conclude: "Dye injected in small quantities in rabbits to different areas of the bladder wall, different levels of the ureteral wall and cervix, is absorbed and passes to the common iliac group of glands, either directly or through interposed smaller nodes, then upward toward the thoracic duct, and the implication from one series was that the dye passes to the blood stream and to the kidney."

Examine neurotics with special care. The term usually covers the fact that a correct diagnosis has not been made, not only in the strong longshoreman or ambitious young person types, but also in weak nervous patients suffering from chronic absorption from undiagnosed foci as have been mentioned, and stasis in the intestinal as well as the urinary tract. We cannot always get a perfect history, as one woman whose symptoms were unquestionably pyelonephritis with a severe cystitis, but whose upper urinary

tract on repeated examination was found negative. Later it was brought out that a bilateral pyosalpingectomy had been performed, and due to the resultant adhesions there was direct infection of the bladder, causing the severe cystic symptoms.

Chronic seminal vesiculitis has been another source not mentioned by the author, and has caused acute attacks so severe that more than one patient has had an emergency appendectomy performed. One of our own patients, a boy of nineteen (with no symptoms referred to the kidney, ureter or bladder), complained of an acute, mild, non-specific urethritis, which would clear up with a few days' treatment, only to recur. After a month or so he voided a small ureteral calculus, when all of his symptoms were relieved. This emphasizes the necessity of a careful history and a thorough urologic study, even in those patients in which the causes may seem very simple. Red blood cells found in the urine and not accounted for should call for an examination, including intravenous urography and, if warranted, followed by a retrograde x-ray study.

In 1927 Eisendrath made a plea for the early use of the indwelling catheter, but each patient must be handled individually, because there are some acute cases in which lavage and catheter drainage aggravate the condition; and yet the same measures during another attack may act like a charm. (Hooe left a catheter in one kidney eight days and in the opposite kidney fourteen days, with no untoward results.)

Modern treatment of pyelonephritis should include the stimulation of the endocrines that have to do with infections.

Doctor Dillon has called our attention to a condition which we may meet clinically daily, and yet about which very little has been written or said.

✱

CHARLES P. MATHÉ, M.D. (450 Sutter Street, San Francisco).—Doctor Dillon has presented a paper in which he stresses the point that many infections of the urinary tract are overlooked because of inadequate examination of the urine. In cases in which pyelonephritis is suspected, and in which the urine is found to be clear, repeated examinations of catheterized specimens should be made because pus and bacteria might occur in showers. However, if one takes the care to make these repeated examinations he will usually encounter pus and the infecting organism. Occasionally pus and organisms fail to find their way into the bladder because of some obstructive lesion in the ureter such as a stricture or edema. In these a complete cystoscopic examination is necessary to establish a diagnosis.

When one encounters polypi on the neck of the bladder and in the posterior urethra, one should look for infection in the prostate gland and in the kidneys. These are often secondary to kidney infections, and this phenomena is often observed in the female.

The rôle of foci of infection in the production of chronic pyelonephritis has long been recognized, but not sufficiently emphasized. Years ago Rosenow, and Bumpus and Meisser demonstrated that the green-producing streptococci, originating in foci such as teeth and tonsils, have a specific predilection for the kidneys. In all cases of chronic infection, abscessed and pulpless teeth, and infected tonsils should be removed. Unfortunately, in many cases these are removed too late, when irreparable damage to the kidneys had already taken place. We have observed that, following removal of these primary foci, a severe general reaction may follow which might be accompanied by an exacerbation of pyelonephritis. This phenomena may be considered as positive evidence of the original infective focus. Modern treatment of chronic pyelonephritis should consist of systematic eradication of other possible foci, as well as infections of the skin, prostate, seminal vesicles, sinus, ear, etc. Chronic constipation and stasis in the upper and lower urinary tract should also be corrected, as these play an important rôle in the production of chronic pyelonephritis.

I recall a patient possessing a huge pyohydronephrosis presenting chronic pyuria which had been treated for chronic prostatitis for two years by a competent urologist. Because of pain in the upper abdomen, a surgeon diagnosed chronic colitis; however, on encountering a mass in the right upper abdomen, he suspected a kidney lesion and

referred him to me for examination. A complete urologic study revealed a huge infected hydronephrosis secondary to an aberrant vessel, and nephrectomy cured the patient of his pyuria. I observed a similar patient presenting calculus pyelonephrosis who had been treated for chronic prostatitis in one of our clinics for seven years. These experiences should emphasize the importance of making a complete urologic investigation in all cases presenting chronic pyuria.

The internist and general surgeon often confuse pyelonephritis with influenza, abdominal lesions such as appendicitis salpingitis, gall-bladder disease, gastro-intestinal lesions, etc. As Doctor Dillon has so well pointed out, the distinguishing feature in its differentiation lies in painstaking, repeated urine analyses, including centrifugation of the urine over a long period of time, and making careful cultures.

## THE LURE OF MEDICAL HISTORY†

### THE HUNTERS IN EMBRYOLOGY\*

By A. W. MEYER, M.D.  
Stanford University

II\*\*

IN addition to many fine representations of the pregnant uterus, this costly volume of William Hunter's contains drawings of dissections of the latter, and representations of the ovaries and of placenta injected with colored wax from the uterine and umbilical vessels. Although it was the dissection and study of a doubly injected uterus, with the injected fetus *in loco*, that convinced John of the independence of the maternal and fetal circulations, the relationship of these circulations is left without comment in William's famous treatise. It is true that William referred to "RR" as "Veins emerging from the substance of the placenta and broken through at its surface, where they were passing into the womb" in connection with Plate 19, and that he said in connection with Figure II, Plate 24: "Most of the blue wax, which was first injected by the veins of the womb, was driven on towards the internal surface; and the red wax, which was afterwards injected by the arteries, was lodged principally in the outer parts; but the two colours were, more or less, blended through the whole." In one of the legends accompanying Plate 5, he spoke of "ee" as "injected veins, of a flattened figure with numerous anastomoses, passing from the womb to the placenta in a very slanting direction." "LL" of Figure 1 of Plate 24 is of "The placenta, adhering to the womb. None of the wax, injected into the vessels of the womb, had passed into the branches of those vessels which compose the navel-string; . . . but the cells, or interstices in the spongy part of the placenta, were universally loaded with wax, either the blue, which was injected into the veins of the womb, or the red, which was thrown into the arteries." In connec-

†A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany department, and its page number will be found on the front cover.

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\*\*Part I of this paper was printed in the November issue, page 420.

tion with "BBB," Figure 1, Plate 29, he said: "The round surface, enclosed by that edge, is the outer surface of the placenta, which had adhered to the womb. In separating those two parts, many arteries and veins were torn through, one part of each remaining with the womb, and the other with the placenta."

#### ON THE INDEPENDENCE OF THE FETAL AND MATERNAL CIRCULATIONS

Although these words leave the crucial conclusion to the insight and inference of the reader, it may be recalled that William said that his "discovery" of the independence of the fetal and maternal circulations had been acknowledged by Haller thirteen or fourteen years before the disagreement with his brother John in 1780, in Haller's *Elementa physiologiae corporis humani*, Vol. 8, p. 220, which appeared in 1766. However, instead of having credited William with the discovery, Haller<sup>17</sup> merely gave a brief summary of William's ideas in an addendum, retaining the contrary idea in the text and saying that Hunter's ideas regarding the decidua have been "partly corrected and partly confirmed." According to Haller's statement in this addendum, William believed that a liquid injected into the vessels of the uterus "pours into every cellular part of the placenta, and from these cells returns into the broader veins of the uterus. None of it passes into the branches of the umbilical vessels. When the umbilical artery is filled with a colored liquid, while the placenta still adheres to the uterus, the branches of the umbilical arteries and veins are all completely and readily filled; yet nothing passes into the vessels of the uterus, unless the liquid has poured into the cells of the placenta." Haller hence merely stated that William believed that the two circulations were independent without characterizing the idea as a discovery. Since this was written in connection with a historical summary of the idea, it is not without significance.

Teacher<sup>9</sup> (1900) concluded that "... it is unreasonable to suppose that they [the injections] were figured then [1750], yet only understood in 1754." (p. lvi.) But it seems equally strange that William should have remained silent in 1774 in regard to what he said, in 1780, he so firmly believed and thought he had discovered in 1754. I do not know upon what grounds Teacher<sup>18</sup> (1899) stated that William's conclusion regarding the distinctness of the maternal and fetal circulations "was, as Hunter was aware, strictly speaking, not a new discovery" (p. 32), but if justified, it robs William of his claim and reveals him in disparaging light. It may well be true, as Teacher held, that William Hunter presented the anatomical proof that the two circulations do not mingle, yet the real question is not whether he presented this

proof, but whether he fully accepted it for man, before John, and that does not seem to have been the case. This point is referred to by an anonymous auditor<sup>14</sup> of William's lectures who recorded him as saying that

These appearances I first saw in a cat that was pregnant which I injected from the uterine vessels, after which I injected by the navel string. The injection was distinct, I afterwards saw the same in a bitch. These discoveries were early in life, and taught me to believe that the same course of things existed in the human species, though I could not demonstrate it, not having had an opportunity to inject a pregnant uterus; but soon after I did meet an opportunity, & the appearances staggered me. For after injection of the parts, I found the uterine injection filled up a great part of the placenta &c. which on examination proved to be spongy & cellular. (p. 82.)

Hunter no doubt was "staggered," as well he might have been, because the injections of pregnant human uteri, instead of being unequivocal as in the cat and dog, were confused and seemed to controvert the conclusion reached from injections of the carnivora mentioned. However, according to Needham,<sup>3</sup> "His [William's] injections left no shadow of doubt about the matter, and the way was clearly opened up for the study of the properties of the capillary endothelial membranes separating the bloods . . ." (p. 201.)

Since, as stated above, William said that Haller<sup>17</sup> credited him with the "discovery" of the independence of the fetal and maternal circulations, in 1766, it seems all the stranger that this idea was not given explicit expression in the *Gravid Uterus*, which appeared eight years later. It also is noteworthy that Haller did not adopt William's idea in the third edition<sup>19</sup> of his *Prima Linæ*, in 1767, but maintained the idea expressed by him in the edition<sup>20</sup> of 1751 and found even in the German edition<sup>21</sup> of 1788 and the English edition<sup>22</sup> of 1801, in which one reads as follows: "This communication of fluids between the uterus and placenta, seems to be demonstrated . . . lastly, from the passage of water, quicksilver, talow, or wax, from the uterine arteries of the mother into the vessels of the placenta, as observed, and lately confirmed by eminent anatomists." (pp. 437-438, Section 891.) Two eminent anatomists who thought that they had proven this, according to Fasbender, were Cowper (*Bidloo's Anatomy*, given out by Cowper at Oxford in 1697, in his own name) and Noortwyk (*Uteri humani gravidi anatomia et historia*, Lugd. Bat., 1743).

<sup>19</sup> Haller, Albrecht von: *Prima linæ physiologiae in usum prælectionum academicarum*, ad editionem tertio acutam et emendatam expressæ. Accedit rerum index. Edinburgi, 1767.

<sup>20</sup> —: *Prima linæ physiologiae in usum prælectionum academicarum*, auctæ et emendatæ. Göttingae, 1751.

<sup>21</sup> —: *Grundriss der Physiologie für Vorlesungen*. Nach der vierten lateinischen, mit den Verbesserungen und Zusätzen des Herrn Hofrath Wrisberg in Göttingen, vermehrten Ausgabe, von neuem übersetzt und mit Anmerkungen versehen durch Herrn Hofrath Sömmerring in Mainz, mit einigen Anmerkungen begleitet und besorgt von P. F. Meckel. Berlin, 1788.

<sup>22</sup> —: *First lines of physiology*. Translated from the third Latin edition. To which is added a translation of the index composed for the Edinburgh edition printed under the inspection of Dr. William Cullen. Edinburgh, 1801.

<sup>17</sup> Haller, Albrecht von: *Elementa physiologiae corporis humani*. Tomus octavus. Fetus hominisque vita. Bernae, 1766.

<sup>18</sup> Teacher, John H.: William Hunter, anatomist: a lecture with demonstration of preparations from the obstetrical series of the Hunterian museum. Glasgow Medical Journal, 52:15-34, 1899.



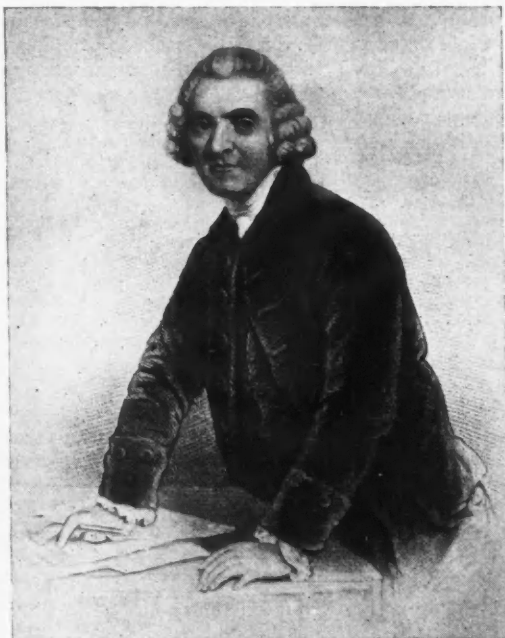


Fig. 1.—The Reynolds portrait of William Hunter, after Peachey, 1924.

The above opinion was expressed also in Volume 1 of Haller's *Physiology*,<sup>23</sup> which appeared in London in 1754, for it is there asserted that:

This communication of the vessels, appears evident, from the loss of blood which follows from a separation of the placenta in a miscarriage; and from the blood of the foetus being exhausted from an haemorrhage in the mother; from haemorrhages that ensue from the navel-string, so as to kill the mother when the placenta has been left adhering to the uterus; and lastly, from the passage of water, quicksilver, tallow, or wax, injected from the uterine arteries of the mother into the vessels of the placenta, as is confirmed by the most faithful observations; to this add the cessation of the menstrual flux in the mother, which quantity of blood must of necessity be taken up by some other part, viz. the foetus. (p. 306, Sect. 830.)

Haller's idea of the nutrition of the fetus, and its relation to the mother, is very interesting, and is indicated by the following words from the edition<sup>24</sup> of the *First Lines* published in Edinburgh in 1786:

There, in the common surface of the uterus and placenta, a communication is made, by which the uterus sends to the foetus, first that white serous liquor not unlike milk, and lastly, as it seems, red blood itself. This communication of the humours seems to be demonstrated by the suppression of the menses in women with child, whose blood must be turned into another channel; from the loss of blood which follows from a separation of the placenta in a miscarriage; and from the blood of the foetus being exhausted from an hemorrhage in the mother; from

hemorrhages that ensue from the navel-string, so as to kill the mother when the placenta has been left adhering to the uterus; and, lastly, from the passage of water, quicksilver, tallow, or wax, injected from the uterine arteries of the mother into the vessels of the placenta, as is confirmed by the most faithful observations. But that it is blood which is sent into the foetus, is evinced by the magnitude of the sinuses of the uterus and placenta; the diameter of the serpentine arteries of the uterus; the hemorrhage that follows, even when the placenta is very slightly hurt; but especially by the motion of the blood, which, in a foetus destitute of a heart, could only be given to the humours of the foetus by the blood of the mother. (pp. 211-212, Sect. 891.)

In a footnote to this passage, it is stated:

Of the two most noted conjectures which usually explain the communication of the uterus with the placenta, resorption, or the immediate anastomosis of the blood-vessels, the last has always had the most partisans. I am sorry that various arguments, sufficiently weighty, prevent me from so easily embracing the same side; which arguments my celebrated pupils, Balthasar and Moeller, have already mentioned, and which shall now be partly delivered by myself.

Among these arguments is the following:

By the most successful injections, made with all due care, once into the uterus of a pregnant woman who died in the seventh month of gestation of a wound, several times into the womb of mares, cows, goats, rabbits, dogs, and cats, &c. preparations of which I possess, I never could convey the smallest quantity of the most subtle liquor into the uterus from the vessels of the cord, nor from the vessels of the uterus into the placenta: the liquor entered only the cellular texture of the fungous chorion, and filled it with irregular particles.

I do not know whether John was unfamiliar with the teaching and the work of Alexander Monro primus (1696-1767), but it is rather difficult to see how William could have been, since it is stated in the *Dictionary of National Biography*<sup>25</sup> that he "spent the winter of 1740-1741 under 'Monro primus' . . ." who, as early as 1734, according to Cole,<sup>26</sup> "published a striking but neglected paper in which the independence of the maternal and foetal bloods in the placenta is for the first time placed beyond question by injection experiments." (pp. 324-325.) The paper referred to by Cole is entitled "'An Essay on the Nutrition of Foetuses,' *Medical Essays, &c.*, Edinburgh, 1734, vol. ii, 12mo.," of which Cole said some copies are dated 1733.

Sprengel<sup>27</sup> also had called attention to the fact that the elder Monro had determined the existence of "muscular fibers in the uterus and had rejected the idea of the direct communication of the maternal and foetal vessels." (p. 322.) He cited the *Medical Memoirs of the Royal Society of Edinburgh*, Vol. 2, p. 128, as his authority, but the reference in the third German edition<sup>28</sup> (Halle, 1828) is to the "*Essays of a soc. at Edinb.*, vol. 3. p. 275; vol. 4. p. 450." (p. 213.) In this third

<sup>23</sup> —: Dr. Albert Haller's *Physiology*; being a course of lectures upon the visceral anatomy and vital œconomy of human bodies. Vol. 2. London, 1754.

<sup>24</sup> —: *First lines of physiology*. Translated from the correct Latin edition printed under the editorship of William Cullen, M. D. and compared with the edition published by H. A. Wrisberg, M. D., Professor of Göttingen. To which are added the valuable index originally composed for Dr. Cullen's edition; and all the notes and illustrations of Professor Wrisberg, now first translated into English. Vol. 1. Edinburgh, 1786.

<sup>25</sup> Bettany, G. T.: William Hunter. *Dictionary of National Biography*. New York, 1891.

<sup>26</sup> Cole, F. J.: *The history of anatomical injections. Studies in the history and method of science* edited by Charles Singer, 2:285-343. Oxford, 1921.

<sup>27</sup> Sprengel, Kurt: *Histoire de la médecine, depuis son origine jusqu'au dix-neuvième siècle. Traduite de l'allemand sur la seconde édition, par A. J. L. Jourdan*. T. 4. Paris, 1815.

<sup>28</sup> —: *Versuch einer pragmatischen Geschichte der Arzneykunde*. Dritte, umgearbeitete Auflage. Th. 5, Abt. 1. Halle, 1828.



German edition Alexander Monro, Sr., and his sons, Donald and Alexander, are credited with having done much, experimentally and otherwise, to establish the correct view regarding the relations between the maternal and fetal circulations. Roederer (1725-1763) is likewise given credit for having done this and there can be no doubt regarding Monro, Sr., who wrote:<sup>29</sup> "... I cannot be more certain of anything than that there is no anastomosis or continuity of these vessels in cows." (p. 388.) He then quoted from Vieussens (Dissert. de Structura et Usu Uteri, &c., § 56):

"And again, 'The effusion of blood at birth, without doubt was also the cause why several old anatomists, who were little acquainted with the natural oeconomy of the human body, yea and Mr. Mery, believed that the arteries of the womb directly opened into the veins of the placenta, and that the arteries of the placenta opened into the veins of the womb; from which they concluded, that the mother's blood circulated into the body of the foetus, and that the blood of the foetus passed into the mother's body. But the falsity of this opinion, which was refuted by many anatomists of the last century, who were not only skillful dissectors, but very learned natural philosophers, shall be most evidently demonstrated from what I am to say, when I explain the internal structure and the use of the placenta; so that the abettors of it will readily reject it.'" (pp. 390-391.)

It is true that Monro also declared that "The smaller share by far of the blood sent out by the umbilical arteries is returned to the uterus, most of it being poured into the umbilical vein by anastomosing canals. This may be seen by injecting liquors into the umbilical arteries of any creature." (p. 392.) But by this he merely allowed for the return of some of the plasma by the "absorbents" (lymphatics) which he believed existed in the placenta. Monro also believed that the maternal and fetal circulations communicated with each other by means of invisible pores too small for the passage of blood cells. This view was in entire harmony with the prevailing view regarding absorption from the intestine to which Monro, in fact, referred.

As Cole said:

In the description of his plates of the gravid uterus, published posthumously in 1794, William Hunter states that he first injected the vessels of the foetal placenta from the navel string in 1743, but it was only when the plates were first issued in 1774 that this experiment was described. He says that he injected the placenta with wax of different colours—the uterine arteries red and the veins blue, but none of the injection mass passed into the vessels of the navel string. In the 1794 publication further details are added. The placenta of man and quadrupeds, he remarks, is composed of two parts intimately blended—a foetal element, which is the continuation of the umbilical vessels of the foetus, and a maternal, which is an "efflorescence of the internal part of the uterus".... When the second Monro and William Hunter were students, it was still believed that the maternal blood circulated through the foetus by the navel-string, and returned to the parental vessels, in spite of the positive demonstration to the contrary by the first Monro. Hunter's belief in injection

methods was deeply strengthened by his visit to Albinus in 1748, when the beautiful preparations of the Leyden Professor fired the imagination of the Scots anatomist. (pp. 333-334.)

(To be concluded)

#### CONVERSATIONAL GEMS OF DR. J. P. WIDNEY\*

*Founder of the Los Angeles County Medical Association:  
At Age of Ninety-Five Still Active in Literary  
and Church Work*

The world does not need moral soothing syrup—it needs castor oil.

You can help a man without indorsing him.

The trouble with some people is, they have more religion than piety.

It is a moral and civic mistake to try to save people from the penalty of their wrongdoing.

Live so that your life will be the only answer needed to silence slander.

Let the one who pays the bills do the planning.

When growth ceases, death has begun.

The whole cry of old and young is, "Do something to amuse us."

I am my brother's keeper, but I am not his jailer.

If you wish to look into the past, do it with a looking-glass.

Do not turn around. Lot's wife turned around.

A thing you do not need is dear at any price.

It is easier to give money than it is to give work.

There are people so clumsy they cannot turn around without stepping upon themselves.

Democracy should mean something more than dirt.

We judge the orchard by its fruit. The orchard is planted for its fruit—not to be looked at only.

Do few things, but do them thoroughly.

The history of the world may be summed up in one sentence—the struggle for life with plants, animals, and man.

There are dregs in the wine cup.

It's a great thing to die in a stylish neighborhood. It gives one a good send-off.

Tickling the palate makes Death laugh.

Hunger is nature's spur to industry.

Your stomach knows better than your brains what you should eat.

Sugar sweetens the mouth but sours the stomach.

The ultimate tenure of land ownership is occupancy and use.

The way to succeed in life is to help the other fellow.

Calling a piece of paper a dollar does not make it a dollar.

The word unspoken does not have to be retracted nor explained.

The observance of the law and the safety of the home depend more upon the church than upon the policeman.

You find yourself wherever you go.

Remember, in business the small order often brings the big order.

The cart is a greater factor in man's uplift than the airplane.

A rotten egg will be worse tomorrow.

The world is perishing of gush.

You cannot make a canary out of a jackass, nor a pound cake out of a sack of cornmeal.

Post the books every night, but plan for the years.

A table blessing: We thank Thee, Lord, for daily food and for our home. Help us to do what is right and to avoid what is wrong. Amen.

Caroline, I think I'll not have time to die. (Said at 92.)

\* Compiled by Rebecca Davis Macartney.

Previous excerpts from the Macartney compilation were printed in the July issue (page 61), August issue (page 171), September issue (page 278), October issue (page 355), and November issue (page 422).

<sup>29</sup> Monro, Alexander: An essay on the nutrition of foetuses. pp. 369-444 in *The Works of*, Published by his son. Edinburgh, 1781. Also in *Medical Essays and Observations*, revised and published by a society in Edinburgh, 2:121-232, Edinburgh, 1734, and 3:267-275, 1735.

## CLINICAL NOTES AND CASE REPORTS

### RADIUM IN LESIONS OF THE FACE

By IRVING BANCROFT, M.D.  
Los Angeles

AT a recent meeting a prominent surgeon stated, "You cannot use radium without destroying the good as well as the diseased tissue." That opinion, seemingly widespread, is erroneous. Radium can be so filtered that diseased tissue only is destroyed, but in order to do that, the time of exposure, as well as the amount of filtration, must be correct. Destruction, in this case, is accomplished by the prevention of reproduction rather than by actual necrosis.

Unfiltered radium, it is true, destroys all tissue, and when so used as a simple destructive agent, is inferior to the actual cautery because it is not so definitely controlled. On the other hand, when it is desired to destroy only the pathologic tissue and cause no visible scar, radium must be so filtered that the rays of longer wavelength are stopped by the filter, and only those of a shorter wavelength are allowed to pass and act on the tissues.

The heavier the filtration the more nearly the efferent rays are of the same wavelength. As a result of this homogeneity, the time of application becomes the important factor and, by changing the time, different groups of cells in normal skin are destroyed. The epithelial lining of the hair follicles are the most sensitive cells in the skin, and the subcutaneous connective tissue is the most resistant. Assuming the radiosensitivity of the skin as 1, the average sensibility of a carcinoma is 0.90 and sarcoma is 0.70. Other abnormal cells vary in susceptibility. Graafian follicles are about five times more sensitive than the skin. In order to get the selective action of radium to its fullest extent, all alpha and beta rays must be cut off and most of the gamma rays of long wavelength. In order to do this with ten milligrams of radium distributed over an area of one square centimeter,



Fig. 3.

Fig. 4.

Fig. 3.—Seborrheic keratosis, destroyed without scar formation by 10 milligrams of radium filtered with one millimeter of gold and one millimeter of lead. Length of application was twenty-four hours.

Fig. 4.—Same as Fig. 3, several months after treatment.

a filtration of one millimeter of gold and one millimeter of lead will result in allowing approximately 25 per cent of the soft gamma rays and 93 per cent of the hard gamma rays to pass and be absorbed by the tissue. The soft gamma rays are



Fig. 5.

Fig. 6.

Fig. 5.—Basal-cell epithelioma. Ten milligrams of radium was applied for twenty-four hours, filtered with one millimeter of gold and one millimeter of lead.

Fig. 6.—Same as Fig. 5, but twenty days later. Shows no destruction of normal tissue.

those which are totally absorbed by 20 millimeters of lead, and the hard gamma rays are those which all pass through 20 millimeters of lead. Such heavily filtered radium requires a longer or shorter period of application according to the amount of radium used. Some 240 milligram hours of



Fig. 1.

Fig. 2.

Fig. 1.—Basal-cell epithelioma, destroyed by 10 milligrams of radium filtered with one millimeter of gold and one millimeter of lead. Time, twenty-four hours.

Fig. 2.—Same as Fig. 1, showing absence of scar formation.



Fig. 7.

Fig. 8.

Fig. 7.—Epithelioma of five years' duration. Fifty milligrams of radium was applied in two different places for periods of eighteen hours each. Total area of the radium was about six square centimeters. Filtered with one millimeter of silver and one millimeter of lead and four millimeters of wax.

Fig. 8.—Same as Fig. 7, but taken thirty-six days later. Shows destruction of pathologic tissue only.

radium filtered as above can be used without permanent destruction of normal cells, and basal cell carcinomas will be destroyed by that dose.

The minimum requirement to filter out the alpha and beta rays is 10 millimeters of aluminum, 2 millimeters of lead, .7 millimeters of gold, or .6 millimeters of platinum. Paraffin, rubber, and other organic filters, have very little effect in stopping any of the rays; 20 millimeters of these substances allow from 91.2 to 97.8 percent of the hard gamma rays to pass. The above statements are worked out from the tables of Albert Laborde, and are based on the coefficient of absorption of the various substances.

The submitted photographs of pathologic conditions of the face are selected from many similar good results, all treated by the principles as stated above.

523 Pacific Mutual Building.

### PUERPERAL PEMPHIGUS\*

By SAUL S. ROBINSON, M.D.  
Los Angeles

**ACUTE** pemphigus occurring in the puerperium is rare. The cutaneous manifestations of puerperal septicemia are usually purpura, petechiae, and scarlatiniform erythema. The rarest cutaneous findings are bullae, papules, and urticarial lesions. Little reference, however, to acute pemphigus occurring during the puerperium is to be found in the literature.

#### REPORT OF CASE

Mrs. E. C., aet. 31, was admitted with the diagnosis of pregnancy, full term; pyelitis. The patient had complained of bladder distress one month before her admission. The urine at that time contained 2 plus albumin, and 20 to 30 leukocytes per high dry field. A diagnosis of pyelitis was made.

On August 6 the patient was delivered of a living male child. A perineorrhaphy was performed at the time of delivery.

On August 8 the temperature rose to 100.9 degrees Fahrenheit, and a large bleb, 2 centimeters in diameter, appeared on the inner surface of the left thigh. Small blebs appeared in large numbers, chiefly over the buttocks. Pus appeared at the lower angle of the episiotomy wound.

On August 12 the temperature was 104 degrees Fahrenheit, and a new crop of bullae appeared. Culture from a cutaneous bleb showed a growth of *Staphylococcus aureus*.

An August 13 bullae appeared on the ears and on the anterior chest. The patient's face was cyanotic and she became comatose. The temperature elevated from 105 to 107 degrees Fahrenheit, and was followed by a severe chill. Examination of the blood showed: hemoglobin, 63 per cent (Sahli); erythrocytes, 3,160,000; leukocytes, 19,600; polymorphonuclears, 92 per cent; lymphocytes, 7 per cent; basophiles, 1 per cent; coagulation time, seven minutes.

On August 14 the temperature was 105 degrees Fahrenheit, and the patient again had a severe chill. The outer layers of the epidermis became loose and detached. A diffuse vesiculo-bullous eruption covered most of the trunk and the extremities. Large areas of denuded skin with a raw, erythematous surface were present. The bullae and vesicles were thin-walled, and could be easily broken. A positive Nickolsky sign was elicited.

On August 15 more than one-half of the body surface was denuded of epidermis. The face was red, dry, and

scaly. Examination of the blood showed: hemoglobin, 45 per cent; erythrocytes, 2,630,000; leukocytes, 27,250; polymorphonuclears, 94 per cent; lymphocytes, 2 per cent; myelocytes, 4 per cent.

On August 20 the patient's coma deepened. The temperature elevated from 105 to 108 degrees Fahrenheit before death. The cultures of the fluid from the bullae again grew *Staphylococcus aureus*.

**Necropsy Findings.**—The superficial skin was almost entirely removed, and a few bullae were present. There were large denuded cutaneous areas. Examination of the lungs showed adhesions at the apices and hypostatic congestion in each lower lobe. An embolus was found in a vessel of the lower right lobe. Examination of the heart revealed a vegetative growth on the anterior flap of the mitral valve. The growth was in the flap and measured five-tenths centimeter in diameter. The spleen was enlarged, dark colored, and soft. The kidneys were soft, edematous, and swollen. Each kidney pelvis was slightly enlarged and congested. Stripping the kidney capsule showed minute abscesses scattered over the kidney surface. The ureters were slightly enlarged and thickened.

The urinary bladder mucosa was edematous, congested, and had hemorrhagic areas at the trigone. The liver was enlarged, and small grayish discolorations could be noted through its capsule. Section through these discolorations showed abscesses near the surface. The liver lobulations were swollen and considerably obscured. The gall-bladder, adrenals, pancreas, stomach, and intestines were normal.

The uterus was small, involuted, and contained thrombosed vessels. A small amount of grayish exudate was on its mucus surface.

**Anatomic Diagnosis.**—The anatomic diagnosis was septicemia; pyelitis; cystitis; suppurative hepatitis; suppurative nephritis; chronic fibrous adhesions, apices of lungs; embolus, right lung, lower lobe; acute endocarditis, mitral; pemphigus.

The spleen cultures grew *Staphylococcus aureus*; a smear from the uterus showed many Gram-positive diplococci resembling staphylococci; a few streptococci were present.

The microscopic sections corresponded with the gross pathologic findings. The endocarditis seemed to be an acute exacerbation of an old fibrous condition. The liver presented a typical nutmeg appearance outside of the suppurative areas. The pathologist expressed the opinion that the patient had had an acute infection in the past which had lain dormant until the present crisis produced an acute exacerbation.

#### COMMENT

Brocq<sup>1</sup> has classified acute pemphigus of the reported type under the title, "Acute Infectious Bullous Dermatitis," while Pernet and Bullock<sup>2</sup> described the condition as "Acute Febrile Grave Pemphigus." The septic wounds preceding acute pemphigus have been reported to be produced in some cases by dead animal material or by animal bites. Butchers and handlers of dead animals usually suffer from this type of acute pemphigus. Vaccination wounds<sup>3</sup> have also been reported to precede acute pemphigus. Little reference is to be found, however, to acute pemphigus occurring in the puerperium. The infected perineal wound or, more probably, an infection in the involved internal organs may have been the source of the infection in my patient. *Staphylococcus aureus* was cultured from both the cutaneous lesions and the internal organs.

1930 Wilshire Boulevard.

<sup>1</sup> Brocq: *La Pratique Derm.*, p. 761, 1902.

<sup>2</sup> Pernet and Bullock: *Brit. J. Dermat.*, 8:157, 1896.

<sup>3</sup> Howe: *J. Cutan. Dis.*, 21:254, 1903.

\* From the Hollywood Hospital.

# BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussions invited.

## URINARY RETENTION

### I. ETIOLOGY AND PATHOLOGY

THOMAS E. GIBSON, M.D. (450 Sutter Street, San Francisco).—The term "urinary retention" is defined as partial or complete inability to empty the bladder. Urinary retention must be differentiated from "urinary suppression." Suppression of urine involves partial (oliguria), or complete (anuria) failure of the kidneys to secrete urine. Here the causes are some disease or toxic condition affecting the parenchyma (Bright's disease), reflex nervous influences, obstructive conditions, or a combination of two or more of these factors, as, for example, calculous anuria in which a combination of obstructive and reflex influences may cause partial or complete suppression of urine. Suppression is a failure of secretion involving the upper urinary tract, while retention is a failure of excretion involving, as a rule, the lower urinary tract.

The etiologic factors concerned in urinary retention are classified as follows:

#### OBSTRUCTIVE

##### I. Neoplasms:

1. Prostatic hyperplasia.
2. Median bar (glandular type).
3. Cancer of prostate.
4. Other tumors of the prostate (rare).
5. Extravesical tumors (fibroid of uterus).

##### II. Calculus:

1. Vesical (ball-valve action).
2. Prostatic (encroaching on urethra).
3. Urethral (secondary to prostatic or vesical calculus).

##### III. Infections:

1. Acute prostatitis with swelling.
  - a. Gonorrheal.
  - b. Nonspecific.
2. Abscess of prostate.
  - a. Gonorrheal.
  - b. Tuberculous.
  - c. Nonspecific.
3. Urethral stricture.

##### IV. Trauma:

1. Fractures of pelvis.
2. Straddle injuries (falling astride some object).
3. Blow on perineum.

##### V. Congenital anomalies and acquired deformities:

1. Congenital valves of posterior urethra.
2. Congenital hypertrophy of verumontanum.
3. Congenital stricture, atresia or stenosis of urethra.
4. Diverticulum of bladder.
5. Cystocele.
6. Hypertrophy of trigone or interureteric ridge.

##### VI. Gross hemorrhage:

1. Secondary to tumors of kidney or bladder.
2. Secondary to tuberculosis of kidney or bladder.

## VII. Foreign bodies inserted in urethra:

### NEUROGENIC

#### A. Central nervous system (cerebral and spinal):

1. Neoplasms:
  - a. Primary.
  - b. Metastatic.
  - c. Extradural.
2. Infections:
  - a. Cerebrospinal lues.
  - b. Locomotor ataxia.
  - c. Luetic meningitis.
  - d. General paresis.
  - e. Poliomyelitis.
  - f. Acute (transverse) myelitis.
3. Toxic and degenerative lesions:
  - a. Pernicious anemia.
  - b. Diabetes.
  - c. Multiple sclerosis.
  - d. Syringomyelia.
  - e. Compression myelitis (caries, tumor, etc.).
  - f. Arteriosclerosis.
  - g. Apoplexy.
4. Congenital anomalies:
  - a. Spina bifida.
  - b. Lumbar and sacral deformities.
  - c. Meningocele.
5. Trauma:
  - a. Fractures and dislocations.
  - b. Gunshot and other wounds.
  - c. Hemorrhage into brain or spinal cord.

#### B. Peripheral nerve lesions:

- a. Postpartum retention.
- b. Postoperative retention.
- c. Sympatheticotonia.
- d. Infectious fevers.

It is evident, from this sketchy outline, that the causes of urinary retention are multitudinous, and that, therefore, the greatest care and skill are required in their diagnosis and treatment. Prostatic hypertrophy is the most frequent obstructive cause of urinary retention, while syphilis is the basis of the majority of cases of neurogenic urinary retention. The clinical picture is frequently complicated by the fact that retention of urine is not always due to a single factor. Two or more obstructive factors may be involved; and to make the problem more involved, there may coexist a combination of obstructive and neurogenic factors which demand special consideration. For example, inflammatory swelling of the prostate may coexist with actual hypertrophy. In order to properly evaluate the degree and character of the hypertrophy, the inflammatory factor must first be controlled by proper treatment. In this connection, it must be remembered that inflammatory swelling of the prostate may cause complete retention of urine in the absence of any prostatic hypertrophy.



A very common association of obstructive factors is median bar and vesical diverticulum. In these cases the problem as to whether excision of the bar alone, or both bar and diverticulum should be done, calls for decision. A vexing problem which must be met rather frequently is the association of obstructing prostate gland and neurogenic bladder, where a clear-cut indication for prostatectomy is frustrated by the possibility of resultant incontinence. Partial or complete retention of urine is a characteristic of neurogenic bladder in the total absence of a mechanical obstructive factor. Many patients have had the misfortune of being operated on under the mistaken impression that the cause was a bladder-neck obstruction. Three cases of this nature have come to my attention. One was a woman with complete retention in a cord bladder on a luetic basis. Her suprapubic scar was a mute testimonial to an unnecessary operation. Another case was reported (1936) of vesical paralysis associated with cardiospasm, apparently due to a disturbance of sympathetic innervation. Another case under treatment is a boy without evidence of local obstruction or central nervous system disease, yet he has an enormous bladder capacity and large residual. This condition is analogous to megacolon or Hirschsprung's disease, and might be termed sympathicotonia.

The evening of man's life is often harassed by the specter of urinary retention on the basis of prostatic obstruction. It has been stated that every other man over forty years of age suffers some degree of enlargement of the prostate. Teem (1935) has shown, in a large series of autopsies, that the prostate increases progressively in size from birth to old age. This growth reaches pathologic proportion in perhaps a third of all men over fifty years of age. The frequency with which cancer is the cause of bladder-neck obstruction, either alone or in association with benign hypertrophy of the prostate (15 to 20 per cent of prostatic enlargements are malignant), should impress every man over fifty years of age with the importance of having his prostate palpated once yearly, particularly in view of the fact that prostatic cancer is usually incurable after the appearance of symptoms. The etiology of prostatic hypertrophy has long been of great interest, and of late has received renewed attention, particularly from the endocrine viewpoint. Lower and his associates (1935), on the basis of parabiotic experiments, have constructed a hypothetical mechanism for the control of the prostate, which appears to explain the etiology of prostatic hypertrophy. Inhibin, which probably is elaborated in the tubular cells of the testicle, is diminished in amount as the age of the individual advances, and the spermatogenic function declines. With the restraint removed, the pituitary becomes hyperactive and stimulates the interstitial cells to elaborate an excess of androsten which, in turn, acts upon the prostate to produce enlargement. In a preliminary report they are encouraged by the results obtained in treating prostatic hypertrophy with the hormone inhibin. Teem finds no histologic evidence which would point to a relation between the interstitial cells and pros-

tatic hypertrophy. Deming and his associates (1935) state that 50 per cent of prostatic hypertrophies in man arise from the periurethral glands of the posterior urethra, which are not subject to endocrine influences, and that there is no pathologic or histologic evidence that the action produced by castration, or any hormone, influences the growth of prostatic hypertrophy. Hirsch (1936) has revived the theory of Ciechanowski, who was the first pathologist to show by pathologic section that many phases of prostatic enlargement exemplified an inflammatory reaction. Hirsch holds that benign pathologic enlargements of the prostate are due to hyperplasia, rather than hypertrophy or neoplasia, and may be satisfactorily explained upon a chronic inflammatory basis.

All the etiologic factors of urinary retention share in common the pathologic sequelae of renal damage as a result of urinary stasis with back pressure and a secondary infection. Consequently, in urinary retention the condition of the kidneys must be carefully taken into account and every effort made to correct the cause before irreparable damage to the kidneys has occurred. The highly developed diagnostic and therapeutic armamentarium, which the modern urologist has at his command, has made this goal attainable to a gratifying degree.

\* \* \*

## II. SYMPTOMS AND DIAGNOSIS

HARRY W. MARTIN, M.D. (6253 Hollywood Boulevard, Los Angeles).—The symptoms of urinary retention depend, to a great degree, upon the cause and length of time the retention has been present, also whether complete or partial.

In the early stages of prostatic hypertrophy, the bladder may become smaller than normal, which in turn causes frequency of urination or delay in starting of the stream. A small middle lobe may be pulled down by the contraction of the trigone, allowing the bladder to empty completely, and frequently the extra work put on the trigone may cause it to tire and relax before the urinary act is complete, causing micturition in two or more stages.

Usually the bladder becomes unable to empty completely and residual urine remains after the patient has completed urination. This residuum gradually increases in most cases, which reduces the working capacity of the bladder and increases the urinary frequency.

Difficulty of urination increases gradually, accompanied with more hesitation, more straining, a smaller stream, greater frequency, and sometimes there may be blood present and pain. In other cases there may be complete retention and the patient finds that he is unable to urinate at all. The patient may also notice nausea, or even vomiting, headache, loss of appetite, dizziness, drowsiness and impairment of vision, together with a foul breath and lassitude. These symptoms may be due to chronic uremia.

Not infrequently the distress of the patient becomes very great, urination being very painful, difficult, and frequent. The patient's rest may be

disturbed and, especially in cases with large residuals, the renal back pressure changes may present a very grave problem. When infection occurs, the dangers are aggravated: hemorrhage may be a very prominent symptom. In the aged, cerebral symptoms produced by arteriosclerosis are not infrequent. Pain and irritation vary greatly.

*Diagnosis.*—The bladder should be carefully palpated and percussed to determine its size. Cystoscopy should be delayed until bladder pressure has been reduced to normal and an examination of the blood should be made for blood urea, non-protein nitrogen and creatinin. A phthalein test should also be made. The amount of residual urine should be noted and checked at least twice. A cystoscopic examination should be made after the above tests, including an x-ray of the kidneys, ureter, and bladder, have been made. The prostate should be examined by the finger in the rectum.

Polyuria, which may cause marked frequency, must be excluded, as must congestion of the trigone, edema, polyps, and cysts.

Infections of the urethra, prostate, and bladder may produce difficulty of urination. Contractures and bars at the vesical orifice may produce the same symptoms as prostatic hypertrophy and can only be diagnosed by careful study. Tuberculosis of the prostate must also be considered, as well as calculi of bladder, urethra, and prostate.

Diverticula of the bladder may cause retention by encroaching on the bladder, or elevating the floor of the bladder and trigone. They may be demonstrated by a simple cystogram. Bladder paralysis due to spinal-cord disease is often the source of diagnostic errors, and a careful study should be made in order to rule it out.

\* \* \*

### III. TREATMENT

W. W. CROSS, M. D. (1624 Franklin Street, Oakland).—The treatment of retention will depend upon the cause and may be discussed:

First: In patients with a normal urinary tract, the condition is psychic; they are unable to void in the presence of others, the bladder becomes overdistended, the urethra stretched, voiding impossible. A soft rubber catheter relieves the retention, and avoiding overdistention prevents recurrence.

Second: Patients with disease of the spinal cord may have retention, and a soft rubber catheter will give relief. Their management is not to be discussed here.

Third: Simple, uncomplicated stricture; cleansing the external genitals with warm water and soap. The use of a local anesthetic enables one usually to pass an olive-point woven catheter of small caliber. Roughness is never required; prevents success and adds complications. Give fifteen minutes' time for the anesthetic to take effect. Dilatation later should follow.

Fourth: A simple stricture, in which attempts have been made to pass instruments, hemorrhage has been produced, the urethra wounded. The

Le Fort's metal catheter or Phillip's olive point can usually be passed after the above procedure.

Fifth: Stricture complicated by abscess. Drainage of the abscess under anesthesia should first be made, and the stricture dilated. A retention catheter left to drain the bladder will usually stop urinary infiltration. When extensive urinary infiltration has developed, free drainage must be established, but the management of this serious condition cannot be discussed under retention, as the condition is one of a grave surgical interest.

Sixth: Old strictures, with urinary fistula and extensive connective tissue formation in the perineum and around the urethra. When the fistula becomes closed, acute retention results. Alcohol is frequently added as a complication. Placing the patient in a hot bath will frequently relax enough that the patient will void, and the canal can be opened; failing in this, operation will be required. Internal urethrectomy has never been one of my sins, and it has appeared to me that patients who have come under my observation have had a complication added rather than a benefit, after submitting to this procedure. Failing to pass an instrument through the urethra as a guide in my own experience, a retrograde operation is the one of choice. When sounds are passed both from above through the bladder and up to the stricture from below, one easily maintains relations, the stricture is easily divided and the canal reestablished. An indwelling catheter retained for two or three weeks makes it possible to preserve a good canal. When a guide can be passed, the perineal incision is all that will be required. Lest my position be misunderstood, let me say that in the past ten years in my experience of dealing with stricture, operations has been resorted to but upon four occasions. Operation is rarely required and has been resorted to only in the last group, all of the patients having been operated upon before.

During the past ten years my experience with stricture has been large and has afforded an opportunity to observe the results of treatment by others. It is noticeable that operation is rarely required and should be restricted to the type indicated, as better results are obtained when it is avoided.

Seventh: Contracture at the bladder neck. As a rule there is very little difficulty in relieving the discomfort by catheter, and permanent relief is afforded by punch or the resectoscope.

Eighth: Cancer involving the prostate when retention has developed can be relieved by the resectoscope unless the tumor is large, when a suprapubic drain may be required. The management of such patients frequently is a problem. My effort has been to follow a course that guides a patient through a fatal illness with the least discomfort possible. The case under consideration must be the guide.

Ninth: Retention due to adenoma of the prostate usually can be relieved by catheter; this is not always accomplished with ease, but generally, if the soft rubber catheter cannot be passed, one of the single or double Caudé catheters can. If a clot obstructs the catheter, forcing a boric solution

through will dislodge the clot and the bladder relieved. Failing in effort at catheterization, a supra-public drain may be required. Many patients so afflicted should not have the back pressure relieved suddenly; the bladder should be gradually decompressed. Whether an indwelling catheter should be installed depends on the toleration to the catheter. Many are comfortable with its use; others tolerate intermittent catheterization, which my own experience has made me prefer. This condition brings one to a consideration of bringing the patient to a stage when removal of the tumor or resection are to be considered. Whether this can be accomplished by the use of the catheter will depend upon the condition of the patient and his response to the efforts made to develop the desired situation. When the kidney function is constant, the blood chemistry lowered, tongue clear, breath odor improved, skin action good, mental condition clear, and the patient eating well, he is in a condition for relief permanently by one of the methods the surgeon may consider will obtain the best result.

*Catch Many Food and Drug Offenders During Summer.*—Dairy products, fruit, fish, and patent medicines predominate in the recent report of legal actions just issued by the Federal Food and Drug Administration.

Butter containing less than the legal requirements of butterfat represented the most prevalent violation. An aggregate of nearly 71,000 pounds was seized throughout the country. Short weight butter was encountered in only one small shipment, amounting to fifty-six pounds. There were also confiscated 2,900 pounds of butter in an advanced stage of decomposition.

Arsenic and lead residues on fruits brought seizure of the following: 206 crates of cherries, 39 crates of currants, 21 bushels of crabapples, and 614 bushels of apples. Other foods seized because of the presence of a poisonous ingredient were 523 shipping cases of canned sardines and 15,000 pounds of maple sugar contaminated with lead, and 3,300 pounds of calcium phosphate containing fluorin. The calcium phosphate was en route to a manufacturer of baking powder.

Infestation with a parasitic worm was responsible for the seizure of 2,150 pounds of whitefish and related species of fish from the Great Lakes and Canadian lakes area. Other seafood seized during July and August included 3,150 pounds of polluted crabmeat and 914 cases of partially decomposed canned salmon. Other seizures, because of filth and decomposition, involved the following: 635 gallons of dirty cream, 1,520 pounds of decomposed dried olives, 963 cases of tomato puree and 30 of catsup containing mold, 1,150 packages of a partially decomposed fruit spread, and 5,930 cans of a dog and cat food, also partially decomposed.

Frauds on the Purchaser.—Frauds on the purchaser blocked by governmental action are shown by seizure of the following commodities: 307 gallons of a salad oil represented as cottonseed oil when it was, in fact, 90 per cent soybean oil; 16 gallons of a so-called "olive oil" found to consist of cottonseed oil and other vegetable oils, and short volume; 200 cans of a salad oil on which the sole charge was volume shortage; 3,900 jars of short weight peanut butter; 980 jars of short weight preserves; 530 jars of preserves deficient in fruit; 200 cases of tomato puree containing less solid tomato material than is recognized by good commercial practice; 300 pounds of dried apples containing excess moisture; 212 bushels of fresh peaches represented as of grade U. S. No. 1, although below that grade; 8,450 pounds of a "milk" chocolate coating deficient in milk; 2,320 containers or chocolate-flavored "malted milk" deficient in malted milk and some of which carried unsubstantiated remedial claims; 320 packages of so-called "fruit crystals," consisting of sugar, tartaric acid, artificial color and citrus oils, packed in containers shaped like citrus fruits; 976 gallons of "orange juice, sweetened,"

which was really a mixture of orange juice, pulp, ground peel, sugar, artificial color, and acid; and 4,200 packages of so-called "egg noodles" artificially colored and containing no egg.

**Drug Seizures.**—Drugs seized during the last two months included one shipment of *Bacillus acidophilus* blocks found to be lacking in live bacilli, one shipment of substandard sodium fluorid tablets, 1,018 boxes of band-aids represented as "sterile" but found to be unsterile, and the following patent medicines:

"Arcady Wor-A-Ton," consisting of copper sulphate, copperas, kamala, chenopodium, anise, ginger, capsicum, and nux vomica, alleged to be fraudulently represented as a treatment for poultry ailments.

"H. P. Healing Balm," a perfumed lead oleate ointment, found to be not antiseptic although represented as such, and represented as harmless in spite of its lead content.

"Hem-Roid," containing aloe, nux vomica, and witch-hazel, alleged to be misbranded because offered for the relief of hepatic congestions.

"Juice-O-Veg," a water extract of plant juices (the product was actually 95 per cent water), offered for the relief of vitamin and mineral deficiencies although practically inert in vitamins and a very poor source of minerals.

"Moxon's Liniment," consisting of 7 per cent ammonia with water, alcohol, camphor and plant drugs, offered for the treatment of rheumatism, neuralgia, spasmodic and inflammatory affections of the muscles or joints, sore feet, dandruff, sore throat, headache, lame back, general exhaustion, inflammation of the lungs, skin eruptions, inflammatory swellings, bunions, and certain ailments of livestock. (The product was also charged to be in violation of the Federal Caustic Poison Act.)

"Nervo Rumat Liniment," consisting of a red-colored mixture of turpentine, alcohol, water and camphor, for rheumatism, lumbago, poor circulation, and pleurisy.

"Silver Crown Hair-Scalp Tonic," a yellow-colored solution of quinin hydrochlorid and glycerin in water and 1.2 per cent alcohol, for dandruff, itching and scaly scalp, falling hair, and eczema.

"Tam," labeled "no drugs" and represented as a "jam" composed of "natural laxative fruits," but in fact containing senna leaves and other plant laxatives with fruit tissues. The product was also moldy.

**Criminal Prosecutions.**—Criminal prosecutions brought under the authority of the Federal Food and Drugs Act against shippers of adulterated and misbranded foods and drugs were terminated as follows:

Alaska Ice Pack Corporation, Cordova, Alaska; H. T. Domenici, Uyak Bay, Alaska; W. R. Gilbert Company, Inc., Cordova, Alaska; Herbert Heglin, trading as Halibut Bay Packing Company, Halibut Bay, Alaska; Al Jones, trading as Kustatan Packing Company, Anchorage, Alaska; and Washington Fish and Oyster Company, Port Williams, Alaska, partially decomposed canned salmon, fines, respectively, \$10, \$25 and costs, \$25 and costs, \$25, \$15 and costs, and \$26.

Van Camp Sea Food Company, Terminal Island, California, partially decomposed canned tuna, fine \$300.

Red Wing Company, Inc., Fredonia, New York, tomato catsup containing mold, fine \$100.

Robert J. Meguiar, trading as Mid-West Food Packers, Fowlerton, Indiana, short weight mustard containing bran, and moldy catsup containing added gum, fines totaling \$400.

Benjamin Bass trading as the Corner Drug Store, Miss Hilda Frank trading as O'Donnell's Drug Store, Mrs. Catherine A. Hall trading as Hall's Pharmacy, Max Koscow trading as District Drug Stores, Enoch A. Norris trading as Northeast Pharmacy, George R. Salb, Abe Schneider trading as Capital Towers Pharmacy, William T. Kerfoot, Jr., and Louis Wolf trading as Argyle Pharmacy, all of Washington, D. C., incorrectly filled prescriptions, fine of \$25 against each defendant, all fines suspended.

United Drug Company, San Francisco, California, substandard elixir iron, quinin and strychnin, fine \$75.

Clark Remedies Company, Kokomo, Indiana, "E. O. Clark's Famous Liquid Formula No. 6," consisting of kamala, mineral oil, carbon tetrachlorid, turpentine, sassafras oil and water, represented as a treatment for roundworms, tapeworms, pinworms and other worms in poultry, hogs, dogs, rabbits, and cats, fine \$25. . . .



# CALIFORNIA MEDICAL ASSOCIATION

This department contains official notices, reports of county society proceedings and other information having to do with the State Association and its component county societies. The copy for the department is submitted by the State Association Secretary, to whom communications for this department should be sent. Rosters of State Association officers and committees and of component county societies and affiliated organizations, are printed in the front advertising section on pages 2, 4 and 6.

## CALIFORNIA MEDICAL ASSOCIATION

EDWARD M. PALLETTE ..... President  
HOWARD MORROW ..... President-Elect  
W. W. ROBLEE ..... Speaker  
MORTON R. GIBBONS ..... Council Chairman  
FREDERICK C. WARNSHUIS ..... Secretary-Treasurer

### THIS MONTH'S TOPICS\*

#### ASSOCIATION ACTIVITIES

1. Council Minutes.
2. The Season's Greetings.
3. Hospital Insurance.
4. This, That and This.
5. Northern California Trek.
6. Corporate Practice.
7. State Secretaries' Conference at Chicago.

#### PUBLIC RELATIONS DEPARTMENT

1. Charity Service and Income Tax.
2. "Dr." Versus "M.D."
3. Medical Service Through Deferred Payments.

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### ASSOCIATION ACTIVITIES

#### COUNCIL MINUTES†

##### Minutes of the Two Hundred and Forty-Eighth Meeting of the Council of the California Medical Association

1. Pursuant to the call of the Chairman, the Council of the California Medical Association convened in special session in San Francisco on November 7, 1936, for the purpose of considering the report of its Special Committee on Hospital Insurance and for the transaction of such other business as the Chairman presented for consideration.

2. The meeting was called to order by the Chairman. The following officers and councilors were recorded present: President-Elect Morrow, Speaker William W. Roblee, Chairman Morton R. Gibbons, Chairman of Public Relations Committee Charles A. Dukes, Councilors K. L. Schaupp, Calvert L. Emmons, Carl R. Howson, H. J. Ullmann, A. E. Anderson, A. L. Phillips, C. E. Schoff, Harry H. Wilson, William H. Kiger, J. B. Harris, T. Henshaw Kelly, Editor George H. Kress, Secretary F. C. Warnshuis, General Counsel Hartley F. Peart, and his associate, Howard Hazzard.

Absent: President Pallette, confined to hotel room in San Francisco on account of illness; Councilors O. D. Hamlin and Henry Rogers on account of illness.

3. **Corporate Practice.**—A letter from Percy T. Magan was presented and discussed by the Council.

It was moved by Councilor Kelly, seconded by Councilor Wilson, that since the statement on corporate practice was approved by the Council, having been prepared by the legal counsel of the Association at the direction of the House of Delegates, and is a statement of the law in relation to medical practice in California and an

\*All articles listed under this caption, "This Month's Topics," have been written and sent to the Editor by the Association Secretary, Dr. Frederick C. Warnshuis.

†The minutes of the two hundred and forty-seventh meeting of the Council of the California Medical Association were printed in the November, 1936, issue of CALIFORNIA AND WESTERN MEDICINE, page 430.

interpretation of the legal and ethical aspects of medical practice, and since it is not aimed at any particular organization, and as no action can be taken against any organization until full knowledge of the operation and management of the organization is had, this report be published in CALIFORNIA AND WESTERN MEDICINE at the earliest possible date. Carried.

4. **Scientific Committee Report.**—Secretary Warnshuis stated that the Committee on Scientific Work had selected as guest speakers, subject to Council approval, Doctors Frank L. Meleney of New York, J. G. M. Bullowa of New York, Fred Adair of Chicago; that Dr. Herbert C. Moffitt of San Francisco would conduct a clinico-pathological conference at the second general session; and that President Pallette had the privilege of inviting one guest speaker in addition to the above speakers.

It was moved by Councilor Emmons, seconded by Speaker Roblee, that the report of the Committee on Scientific Work be approved. Carried.

A letter from the Chairman of the Section on Eye, Ear, Nose, and Throat, asking that they be granted a guest speaker, was presented, and on motion of Chairman of Public Relations Committee Dukes, seconded by President-Elect Morrow, and carried; the request was not granted, such recommendation for guest speakers being limited to the Committee on Scientific Work.

5. **Committee of Five.**—Correspondence regarding the report of the Committee of Five on the medical survey was presented to the Council. Doctors Rodney Yoell, Harry Wilson, members of the Committee of Five; and councilors discussed the functions and powers of the Committee.

It was moved by Councilor Wilson, seconded by Councilor Ullmann, that the legal counsel of the California Medical Association be made available to the Committee of Five and that the Committee of Five be authorized to take such action in conjunction with and under the instructions of the Council or the Executive Committee as will protect the Association's position in the matter. Carried.

6. **Hospital and/or Medical Insurance.**—T. Henshaw Kelly, Chairman of the Special Committee on Hospital and/or Medical Insurance, submitted a verbal report supplementing the written report of the Committee.

He stated that, after discussion with Dr. W. E. Mitchell of Alameda County, who had been asked to sit with the Committee in the absence of Doctor Dukes, Doctor Mitchell had obtained the consent of the directors of the Insurance Association of Approved Hospitals of Alameda County to operate in San Francisco County upon invitation by the San Francisco County Medical Society. Doctor Mitchell further stated that it seemed logical for the Alameda County hospitalization plan to serve as the nucleus for such activities in the Bay region.

Doctor Kelly further stated, upon information from Councilor Schoff, that Intercoast did not want to come into San Francisco or Los Angeles because of the totally different cost problem involved. He then discussed the possibility of cooperation between the Los Angeles County Medical Association and the hospitals of Los Angeles County under the leadership of Mr. Heerman, to the end that a plan might be speedily put into operation in Los Angeles and the surrounding territory.

Doctor Dukes then stated that he thought Alameda County would give consideration to any county that might ask for inclusion in the Alameda organization.



Doctor Ullmann stated that San Luis Obispo, Ventura, and Santa Barbara counties were anxious to be included in the territories served by the Alameda plan.

After full discussion of the advisability of operating plans at the earliest possible date, it was moved by Councilor Kiger, seconded by Ullmann, that the Council authorize the General Counsel to assist the Los Angeles County Medical Association and the Los Angeles hospitals to formulate a hospital plan in Los Angeles County. Carried.

Doctor Morrow explained the extension of curative medicine by the Federal Government into health departments which had formerly limited their field to preventive medicine. It was felt that the county societies and the health departments should work out a plan so that if the Federal Government decided to extend the Social Security Act to transient camps, indigents, etc., the problem could be handled through the health department and the county societies.

It was felt that, in accordance with President Roosevelt's assertion that individual communities should carry the burden of care for their own people, the California Medical Association should let it be known that we are ready to care for the poor in California.

It was moved by Councilor Wilson, seconded by Chairman of Public Relations Committee Dukes, that this discussion is the consensus of opinion of the Council, and it suggests that its committee work along these lines. Carried.

**7. American Medical Association Appeals.**—Doctor Dukes, representative of the Council at the appeals before the Judicial Council of the American Medical Association of Doctor Smith, et al., and Doctor Callison, et al., presented a report on the hearings and stated that the decisions had not yet been rendered.

**8. Recess.**—At this point a recess was called for luncheon.

**9. Call to Order.**—The Council was called to order after the noon recess by the Chairman, Morton R. Gibbons.

**10. County Hospitals.**—Resolution of the Riverside County Medical Society regarding the care of part-pay patients in county hospitals, was presented and discussed. Doctor Roblee stated that a ruling was desired that could be used as a guide by county societies throughout the State.

It was moved by Speaker Roblee, seconded by President-Elect Morrow, that the matter be referred to a committee of three for study and recommendations to the Council at its next meeting. Carried.

**11. Hall of Medical Science.**—Secretary Warnshuis stated that the final report of the Committee on the San Diego Fair showed outstanding bills of approximately \$600 which included a bill for \$300 for a film prepared by Doctor Ford, which had never been used, the preparation of which was authorized by Doctor Toland.

It was moved by President-Elect Morrow, seconded by Editor Kress, that the matter of film cost be referred to the Auditing Committee. Carried.

**12. Hospital and/or Medical Insurance.**—Further discussion was had of hospital and medical service plans.

It was moved by Councilor Kelly, seconded by Councilor Anderson, that the Council, by resolution, urges the cooperation of the Bay counties medical societies with the Alameda County Society in the development of a plan in the Bay region and urges the cooperation of the Los Angeles County Medical Association with the hospitals of Los Angeles County, to the end that they will establish a hospital plan there; and also urges the cooperation of all other counties in one of the plans approved by the California Medical Association, and that members of the California Medical Association individually and collectively give the matter their earnest assistance and cooperation; and further that the Committee on Hospital and/or Medical Service be instructed to proceed as rapidly as possible along these lines and formulate legislation on the basis of a public corporation or otherwise. Carried.

**13. Legal Department.**—It was moved by Councilor Ullmann, seconded by Editor Kress, that the proposed disbursement for printing expenses be referred to the Auditing Committee. Carried.

**14. Papers Presented at Annual Session.**—After discussion, it was moved by Editor Kress, seconded by President-Elect Morrow, that pursuant to the by-laws of the Association and the rules governing the presentation of papers at annual sessions, the Council, owing to conditions obtaining in the special instance cited, cannot make an exception and grant permission for publication elsewhere of the paper presented by the member in question. Carried.

**15. Leaflet on Publication of Papers.**—It was moved by President-Elect Morrow, seconded by Councilor Emmons, that the Editor and the Secretary be authorized to revise and arrange for publication of the leaflet, "Suggestions to Authors." Carried.

**16. Adjournment.**—There being no further business the meeting adjourned.

MORTON R. GIBBONS, *Chairman*.  
F. C. WARNSHUIS, *Secretary*.

#### THE SEASON'S GREETINGS

"The holiest of all holidays are those  
Kept by ourselves in silence and apart;  
The secret anniversaries of the heart,  
When the full river of feelings overflows;  
The happy days unclouded to their close;  
The sudden joys that out of darkness start  
As flames from ashes; swift desires that dart  
Like swallows singing down each wind that blows!"  
"Holidays"—Longfellow.

"We ring the bells and we raise the strain,  
We hang the garlands everywhere  
And bid the tapers twinkle fair,  
And feast and frolic—and then we go  
Back to the same old lives again."

—Susan Collidge.

A few weeks and the holiday season will be at hand. To some it will be a period of sacred and meaningful days. To others a tradition, or possibly a custom, to be reenacted. To all our holiday season has its own particular meaning and is observed accordingly. May each member, during this season, experience joy and solace.

Your officers and councilors extend to members and readers a very earnest, a most sincere greeting, and wish that your holiday season be one of happiness and contentment. May the new year find you with eyes turned toward better days, with renewed inspiration and good health. To all a Merry Christmas and a Happy New Year.

#### HOSPITAL INSURANCE

The Council convened in special session on November 7 for the purpose of considering and acting on the report of its Special Committee on Hospital Insurance. This report may be found in the Council minutes published in this issue, together with the Council's action.

Hospital insurance is an important subject and problem. It is receiving attention and consideration by large public groups, with an increasing demand that this form of health service be made available on a voluntary basis though there are some who believe that hospital insurance should be compulsory.

The form in which it is made available is of secondary importance. The medical profession's chief concern is that it be not under political direction and that it does not fall into the hands of designing lay and political groups.

The medical profession is the only group that is competent to control and direct the providing of forms of hospital insurance by reason of its knowledge, training and experience, as well as its familiarity with the medical needs of the people.

Members are requested to send in their recommendations on this subject for the guidance of the Council.

#### THIS, THAT, AND THIS

(Credit given to several writers for key sentences)

"She keeps a grievance like a dog—as soon as one dies she replaces it with another." So does the member and

nonmember when committees or the Association advance new procedures and action. The chronic dissenter grasps a new opportunity to exploit a grievance or unwarranted criticism.

"Intimate as soap." A realistic statement. Many misunderstandings would be avoided were we all more intimate and frank in our relationships and dealings with those with whom we come in contact.

"Irrevocable as a hair cut." All persons have experienced occasions when the afterthought caused them to regret that they had not been more careful of their statements or deeds. There are times when amends are impossible, no matter how earnest the endeavor.

"He strains his conversation for a cigar." Let the cigar represent the dollar or personal quest. To attain the end there are those who do not hesitate to strain their integrity or utilize undue advantage.

"Elderly? Why he is so old he gets winded playing chess." Such may be the age of these observations, but it does no harm to now and then repeat certain observations.

#### NORTHERN CALIFORNIA TREK

On Friday, October 17, Councilor Rogers and the State Secretary set out on a 1100-mile automobile trek to visit the members in Humboldt, Del Norte, and Siskiyou counties. Up the Redwood Highway in a drizzling rain was no damper of spirits. As noon neared, the sun came out and added to the beauty of the redwood trees. At Garberville a stop was made to interview the local druggist. Here is a community of 350 voters, population of about 1,000, with a summer population of over 3,000 and many tourists. A splendid opening for a well-trained physician to whom progressive local merchants will accord cordial support.

At Eureka that evening, a well-attended meeting of Humboldt members remained in session till 11:15 o'clock. Excellent spirit exists, and questions and answers produced desirable information and understanding.

Saturday the trek extended on north to Crescent City with its well-equipped, modern hospital, where local members make available adequate medical care. Over the winding roads of the Siskiyou, paralleled with brilliant foliage, and scenery, fishermen in the streams, into Oregon, through Grants Pass, and dusk saw us at the Inn in Yreka, with its lore of gold mining days. An evening at bridge and a night of sleep in the crisp mountain climate and Sunday dawned bright and clear.

At 11 a. m., members, some driving 150 miles, arrived for the scheduled meeting. Books might be written about these medical men, their experiences in practice; how one man provides service for the people living in a radius of seventy-five miles, their abreastness to modern methods, their community activities, etc.

Then followed three hours devoted to our mutual medical interests. It was most appropriate for Doctor Bathurst to close the discussion and relate a story of his early days. Doctor Bathurst has been in practice in Siskiyou County and a member for fifty-nine years and still active and abreast of the times. It was a privilege to meet such a distinguished venerable and respected fellow member, who concluded his discussion with advice to the members: "The more I give the more do I receive from my medical society."

At 2 p. m. and home 400 miles away, via Petaluma, it was with reluctance that the invitation to dine was declined. After nine hours "behind the wheel," Councilor Rogers was delivered to his home, and the midnight ferry saw me in the home city, where bed was promptly occupied.

Would that all our metropolitan members could find the time to visit and fraternize with these fellow members in the northern counties. We are proud of them because they honor and uphold our profession.

#### LEGAL AND ETHICAL ASPECTS OF THE CORPORATE PRACTICE OF MEDICINE\*

The House of Delegates of the California Medical Association, at its sixty-fifth annual session held May 25-27, 1936, adopted a resolution instructing the Council to formulate a letter containing an analysis of the legal and ethical aspects of corporate practice of medicine with respect to corporations so practicing and with respect to physicians rendering professional services on their behalf. The Council was also instructed to transmit its letter to all members of the California Medical Association and to those corporations which it felt might be interested in the subject. Pursuant to the resolution of the House of Delegates, we shall undertake an analysis of, first, the legal aspects of corporate practice of medicine, and, second, the ethical aspects thereof.

##### CORPORATIONS MAY NOT LAWFULLY PRACTICE MEDICINE OR SURGERY

1. *The Status of Corporations with Respect to the Practice of Medicine and Surgery.*—As a matter of law, it is settled beyond all possibility of controversy that, in the absence of specific statutory authorization, a corporation, whether or not engaged in business for profit, may not undertake the practice of medicine or surgery, including each of their correlated branches—such as obstetrics, gynecology, radiology, urology, pathology, pediatrics, etc. The principle just stated is the premise forming the foundation of every judicial decision bearing upon this subject, and, if the factual problems which arise from time to time were simple and clear-cut, there would be no need of any further discussion with respect to this point. However, individuals have frequently attempted to use the corporate mechanism as a means of obtaining financial remuneration from the practice of medicine or surgery, and, in doing so, have devised numerous complex and intricate schemes having as a common object the avoidance of the law's mandate. Many of the methods devised in an effort to avoid the rule that a corporation may not practice medicine have been judicially considered by the appellate courts of this State and other states. By summarizing as briefly as possible a representative group of these decisions, it is possible to convey a conception of the extent to which the courts have applied the principle of law which forbids corporate practice.

The term "corporate practice of medicine" includes the practice of medicine through agents, employees or appointees of the corporation (*Pilger vs. City of Paris Dry Goods Co.*, 86 Cal. App. 277; 6A Cal. Juris., p. 1260). That is to say, a corporation which employs physicians for the purpose of rendering professional services to those members of the public with whom the corporation enters into an agreement providing for medical services when necessary, is practicing medicine contrary to law. For example, in *Pacific Employers' Ins. Co. vs. Carpenter*, 10 Cal. App. (2nd) 592, one of the California District Courts of Appeal held that an insurance corporation proposing to furnish medical services to its policy holders through physicians appointed by it, was proposing to engage in the practice of medicine and surgery contrary to law.

It has also been held that an insurance corporation which proposed to furnish medical service to its policyholders through physicians selected by a committee of the policyholders, was proposing to engage in the practice of medicine. As a consequence, the Court refused to require the insurance commissioner to approve the form of insurance policy which the corporation proposed to issue. *Benjamin Franklin Life Assur. Co. vs. Mitchell*, 85 Cal. App. Dec. 1058.

Since a corporation may not employ duly licensed physicians for the purpose of furnishing their professional services to members of the general public, it is, of course, obvious that a corporation may not employ unlicensed persons to furnish professional services. *Unger vs. Landlords' Management Corp.*, 114 N. J. Equity 68.

The underlying reason which has caused the courts in California and through the United States to condemn any activity upon the part of a corporation which would result in the retention by the corporation (if nonprofit) or its

\*A bulletin issued for the information of the members of the California Medical Association, under date of October 12, 1936.

shareholders (if in business for profit) of some of the financial rewards arising from the practice of medicine and surgery, is well expressed in the case of *Hightower vs. Detroit Edison Co.*, 262 Mich. 1, 86 A. L. R. 509. In that case the Court stated that it is a fundamental principle of our law that none of the learned professions, including law, medicine, and dentistry, are open to commercial exploitation, as it is contrary to the public welfare to permit a "middleman" to intervene, for the purpose of obtaining a pecuniary reward, into the personal and confidential relationship which exists between members of the learned professions and those members of the public who are their clients or patients. A physician must owe his undivided duty and allegiance to his patient; there must not be a corporation or other layman to whom the physician also owes a duty. If a physician is in effect employed by a corporation, whether it be on a salary, commission or fee basis, there is, of necessity, a divided allegiance which the law will not sanction.

In California there is one exception to the principles which have just been discussed. In 1917 the Legislature enacted the Workmen's Compensation Insurance and Safety Act. There is a specific provision in that statute which requires that employers (which, in effect, means the insurance carrier for the respective employers) furnish the services of a physician to the employees injured in the course of employment. The statute provides that the employer shall select the physician; the injured employee may demand that he be allowed to choose between any one of three physicians selected by the employer. It is also specifically provided that employers shall be responsible for the compensation of the physician whose services are secured. For the limited purposes of this statute the practice of medicine and surgery by corporations is specifically authorized. In all other instances, however, the practice of medicine by a corporation is specifically forbidden by law.

In order to determine whether any particular activity upon the part of a corporation is or is not the practice of medicine or surgery, it is only necessary to apply the principle laid down in the *Hightower* case to the particular facts. If the corporation in question, or its shareholders, have been placed in such a position that it or they may secure monetary gain as the direct or indirect result of professional services rendered to members of the general public, then, as a general rule, that corporation is engaging in the corporate practice of medicine and surgery and is acting contrary to law.

2. *Physicians Who Accept Employment with a Corporation Which Is Engaging in the Corporate Practice of Medicine and Surgery Thereby Violate the Medical Practice Act and Subject Themselves to Disciplinary Action by the Board of Medical Examiners.*—Sec. 14, First (a) of the Medical Practice Act provides in effect that any holder of a license to practice medicine and surgery in the State of California who assists in or abets the violation of or who conspires to violate any provision or term of the Medical Practice Act, is engaged in unprofessional conduct. Consequently, it seems clear that a physician who acts as an employee or agent of a corporation which is engaged, without specific statutory authority, directly or indirectly, in the practice of medicine, is, by the very fact of his employment, guilty of unprofessional conduct. A physician who renders professional services as an employee, appointee or agent of such a corporation is, without doubt, assisting and abetting the corporation to violate that provision of the Medical Practice Act which limits the practice of medicine and surgery to regularly licensed physicians and surgeons.

A case which arose under the Dental Practice Act illustrates the present point. In *Masters vs. Board of Dental Examiners*, 85 Cal. App. Dec. 1086, decided June 19, 1936, the facts were: A corporation, located in San Diego, employed a dentist to render dental services to those members of the public with whom the corporation entered into contracts calling for the performance of dental services. The Dental Practice Act contains the following provisions:

"Any dentist may have his license revoked . . . for . . . aiding or abetting any unlicensed person to practice dentistry unlawfully (Dental Practice Act, Sec. 13)."

The dentist so employed was charged with unprofessional conduct in that he aided and abetted the corpo-

ration to practice dentistry. The Board of Dental Examiners found him guilty of unprofessional conduct and revoked his license. The case finally came before a District Court of Appeal, and that court upheld the action of the Board of Dental Examiners.

Returning to the Medical Practice Act, it, like the Dental Practice Act, authorizes the Board of Medical Examiners to revoke the license of any physician or surgeon found to be guilty of unprofessional conduct. Therefore, we may properly conclude that a physician who accepts employment with a corporation which is engaged in the practice of medicine or surgery contrary to law is necessarily violating Section 14 of the Medical Practice Act, and is, as a consequence of such violation, subject to disciplinary action by the Board of Medical Examiners, which may include revocation of the physician's license to practice medicine and surgery. It must be noted, however, that the conclusion just stated does not include employment by any corporation—for there are situations, such as industrial injuries, in which it is perfectly legal for a corporation to employ physicians—the conclusion only covers those situations in which the corporate employer is violating the principle of law which forbids corporate practice of medicine or surgery.

#### THE ETHICAL ASPECTS OF CORPORATE PRACTICE

In so far as this subject is concerned, we are, of course, interested solely in the ethical position of physicians who become employees, appointees or agents of a corporation which undertakes to practice medicine or surgery contrary to law.

The Principles of Medical Ethics of the American Medical Association are binding upon all members of the California Medical Association (By-Laws, California Medical Association, Ch. II, Sec. 1).

The Principles of Medical Ethics condemn in no uncertain terms the practices under discussion. We quote from Sec. 4, Art. VI, Ch. III:

It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual by whatever name called, or however organized under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

A corporation is always a "lay body" in the eyes of the law, even though all of its members or shareholders are physicians. Thus, any corporation, no matter how worthy its purposes nor how noble its objects, which is illegally engaged in the practice of medicine or surgery is necessarily doing so "under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body."

With respect to "direct profit," it must be remembered that, under the law, one of the tests of whether or not a corporation is engaging in professional practices contrary to law is: Are the activities of the corporation such that it or its shareholders will secure fees, commissions or other payments for professional services? It is only when the answer to this question is "Yes" that we have a violation of the rule of law forbidding corporate practice. Hence, a physician who is in the employment of such a corporation is unquestionably guilty of unprofessional conduct. Further comment on the ethical aspects of the corporate practice of medicine would seem unnecessary.

#### CONCLUSION

We have endeavored to analyze as briefly as possible the legal and ethical aspects of the corporate practice of medicine in accordance with our instructions from the House of Delegates. Necessarily, our analysis merely deals with the general problem.

If you, as a member of the California Medical Association, have good reason to believe from facts within your personal knowledge that any corporation is engaging in the corporate practice of medicine contrary to law, or that any physician is unlawfully aiding and abetting any corporation to so violate the law, it is suggested that you com-



municate such facts within your knowledge to the secretary of your county society, so that he in turn may report to this office.

MORTON R. GIBBONS, M. D.,  
Chairman of the Council.  
F. C. WARNSHUIS, M. D.,  
Secretary.

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#### ANNUAL CONFERENCE OF STATE SECRETARIES AND EDITORS

The well designed and spacious new auditorium in the remodeled building of the American Medical Association in Chicago was dedicated by the 1936 Conference of State Secretaries and Editors on November 16 and 17.

The following program governed the conference:

##### MONDAY, NOVEMBER 16—10 A. M.

Call to Order—Rock Sleyster, Chairman of the Board of Trustees of the American Medical Association.  
Address—Charles Gordon Heyd, President of the American Medical Association.  
The Michigan Filter System—L. Fernald Foster, Secretary of the Michigan State Medical Society.  
The Public Health League of California—Glenn Myers, Los Angeles.  
12:30 p. m., Luncheon.

##### MONDAY, NOVEMBER 16—2 P. M.

Address—J. H. J. Upham, President-Elect, American Medical Association.  
The United States Public Health Service and the Social Security Act—Thomas Parran, Surgeon-General, United States Public Health Service.  
The Children's Bureau and the Social Security Act—Miss Katherine F. Lenroot, Chief, Children's Bureau, United States Department of Labor.  
Practical Hints on the Preparation of Manuscripts and Illustrations—Richard M. Hewitt, Rochester, Minnesota.

##### MONDAY, NOVEMBER 16—6:30 P. M.

Dinner Conference of Editors of State Medical Journals—Holman Taylor, Secretary-Editor, State Medical Association of Texas, presiding.

##### TUESDAY, NOVEMBER 17—9:30 A. M.

Insurance Against Alleged Malpractice—Mr. Thomas V. McDavitt, Bureau of Legal Medicine and Legislation, American Medical Association.  
The Scientific Exhibit at Annual Meetings of State Medical Associations—Thomas G. Hull, Director, Bureau of Exhibits, American Medical Association.

REFERRED FOR DISCUSSION BY HOUSE OF DELEGATES  
Consultation and Correspondence with Bureau of Legal Medicine and Legislation.  
Violation of Laws Pertaining to Narcotics.

These conferences were initiated in 1910, and this year's conference was the twenty-third that your secretary has attended. The conference affords a valuable opportunity for state medical officials to gain intimate knowledge of conditions and movements affecting medical practice and organized medicine in the several states of our Union. Much confidential information is imparted.

The Social Security program has been credited as being the entering legislation for federal and state medicine. It was, therefore, with keen and attentive interest that the address of Surgeon-General Parran of the United States Public Health Service and the statement of Miss Katherine F. Lenroot, Chief of the Children's Bureau of the Department of Labor, were listened to. The following are some of the outstanding statements that were made by these two federal officials:

1. We are anxious to make common cause with the medical profession.
2. Our great desire is to work for the common good.
3. Prevention is of first importance.
4. Funds for states will be furnished on the basis of population, financial resources, and public health need.
5. We recognize that it would be unfortunate were we now to crystallize and form a fixed national plan. We must wait to gain experience.
6. Hence, in the beginning we are asking state health departments and agencies to formulate their own programs and budgets which will be submitted for review and approval.
7. We recognize the danger of influence and control, and are guarding against it.

8. Our efforts are nonpartisan.
9. We recognize the danger and the harm that can be done by untrained personnel.
10. We propose to strengthen and extend the work of health departments throughout the country.
11. Each state must meet its own needs.
12. We shall train the personnel.
13. We propose to investigate disease and sanitation.
14. We shall study and improve present public health methods.

\* \* \*

Surgeon-General Parran then imparted what he termed his health philosophy:

1. The health provisions of the Social Security program are here to stay.
2. The state of the public health is a matter of national concern and interest.
3. Control of treatment is important and we must concern ourselves with the existing facilities for diagnosis and treatment.
4. I hope we will have full coöperation.
5. The mass medical problems of a community are of national concern.
6. The Public Health Service is a means, and not an end, for better health.
7. We need to concern ourselves with infant mortality, pneumonia, cancer, heart disease, tuberculosis control, and syphilis.
8. I have no plan to impose on any state.
9. We ask medical organizations to coöperate by appointing suitable committees that will advise and aid.
10. The care of the indigent is going to require study because society is going to demand better care for the indigent.
11. We must study the needs of a state and then make a local approach.
12. I do not believe that there will ever be any national scheme of health insurance or social medicine.

\* \* \*

We are open-minded and pass these statements without comment. They do provide food for serious thought.

The Children's Bureau proposes to interest itself, under similar principles, in the enhancement of the welfare of infants and maternal care. It purposes to coöperate through state and local medical organizations and existing agencies.

Time, therefore, will relate the type, scope and extent of legislative control and provision of medical and health care.

Further comment on the other topics considered by the conference will be presented in subsequent issues.

## C. M. A. DEPARTMENT OF PUBLIC RELATIONS†

### Charity Service and Income Tax

From time to time suggestions have been advanced for a movement to obtain income deductions credit for charity services rendered by physicians. These suggestions have not been ignored. Careful consideration and investigations have been had.

Inasmuch as the subject has been brought up anew, the following letter is presented for our members' information.

AMERICAN MEDICAL ASSOCIATION  
BUREAU OF LEGAL MEDICINE AND LEGISLATION

October 21, 1936.

Dear Doctor Warnshuis:

During Doctor Woodward's absence, I acknowledge receipt of your letter of October 13 relative to a movement to obtain federal legislation enabling physicians to deduct, in the computation of their federal income taxes, the value of the services rendered to charity patients.

The Revenue Act of 1936 provides, by Section 23, that in computing net income there shall be allowed as deductions:

†The complete roster of the Committee on Public Relations is printed on page 2 of the front advertising section of each issue. Dr. Charles A. Dukes of Oakland is the chairman, and Dr. F. C. Warnshuis is the secretary. Component county societies and California Medical Association members are invited to present their problems to the committee. All communications should be sent to the director of the department, Dr. F. C. Warnshuis, Room 2004, Four Fifty Sutter Street, San Francisco.



"(o) In the case of an individual, contributions or gifts made within the taxable year to or for the use of: . . .

"(2) a corporation, or trust, or Community Chest, fund, or foundation, organized and operated exclusively for religious, charitable, scientific, literary, or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual, and no substantial part of the activities of which is carrying on propaganda, or otherwise attempting, to influence legislation. . . ."

In 1920, the United States Commissioner of Internal Revenue, in construing a somewhat similar provision in the Revenue Act of 1918, rendered the following decision:

"Contributions or gifts made within the taxable year to corporations organized and operated exclusively for charitable purposes, which are deductible for income tax purposes from the gross income of individual taxpayers under Section 214 (a) 11, Revenue Act of 1918, have been construed to mean gifts of money or property. The value of services rendered to charitable institutions may not be allowed as a deduction under the aforesaid section."

So far as I am informed, the statement rendered by the Commissioner of Internal Revenue in 1920 still obtains. Charitable contributions made to individuals are not deductible, whether the contributions are in the form of services or in the form of donations of money or other property.

So much for the present situation. The problem of a physician's deducting, in the computation of his income taxes, the value of the services he gives to charity patients is not so simple as it may seem. In the first place, some convenient and practical way would have to be arrived at by which the value of such services could be computed in terms of dollars and cents, and in doing so the gross value of the services would have to be diminished by the money value to the physician of his hospital connection, if the services were rendered in connection with a hospital patient. In the second place, if a physician should be granted the right to deduct the hypothetical value of such services, as charitable contributions, he might equally well be expected to add to his income the hypothetical value of such services. Unless he first made this addition to his income, it would be difficult to see just how he could take credit for it as a contribution, since he cannot contribute what he does not have. In the end, I cannot see any likelihood that a physician would be any better off under the proposed scheme than he is now.

Furthermore, at the present time every effort seems to be directed toward increasing the federal revenues from taxation. Any legislation, therefore, calculated to reduce these revenues is not likely to receive favorable consideration or even to be kindly received. If the medical profession should be placed in a position of asking for itself a tax reduction at a time when every other group is threatened with increased taxation, a reaction against the medical profession might be aroused that would stimulate interest and favorable action looking toward the establishment of state medicine.

This entire matter was considered by the Board of Trustees in May, 1936, when it was decided by the Board that the time was not propitious for organized medicine to seek the enactment of this legislation.

J. W. HOLLOWAY, JR.,  
Acting Director.

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#### "Dr." Versus "M. D."

In this day when doctor degrees are conferred by academic institutions or law to many individuals, the common noun "doctor" indicates that the possessor of that degree is only a learned man or teacher. This noun or adjective prefix does not indicate or identify the science or profession of the individual. So many persons employ this title that it is impossible to identify the doctor of medicine.

It is suggested, in fact urged, that all who hold the degree of doctor of medicine desist from using the adjective "doctor" as a prefix to their names on their stationery, signs, and when registering, and instead affix the abbreviations, "M. D." to their names.

Identify yourself at all times and in all places when signing your name by appending "M. D." to your name. A moment's reflection will cause you to perceive the purpose of this recommendation. Observe this practice from now on and identify yourself with the profession of medicine.

#### Medical Service Through Deferred Payments

Several states and a few of their larger county medical societies have inaugurated plans whereby patients may obtain medical services by means of deferred payments. Where these plans have been instituted and have had operating experiences, the reports impart that patients and doctors are satisfied by reason of these financial arrangements.

The Medical Society of Milwaukee County, Wisconsin, is one of the recent county units adopting this plan. The following is their explanatory statement:

##### HOW MEDICAL SERVICE WILL AID YOUR PATIENT

Perhaps if a hypothetical case is used as an illustration, the manner in which medical service will operate will be made clear.

Mr. X. works in a mercantile establishment. He had learned through publicity given Medical Service that medical care, which his doctor informs him he needs but for which he cannot pay in a regular manner, can be arranged for on a deferred or monthly payment basis, and, if necessary, charges can be reduced to meet his ability to pay.

Mr. X., therefore, goes to his family physician, Dr. J., who agrees that the Service can assist by estimating the total cost of the services needed on the basis Mr. X. can afford. It happens that Mr. X., in the opinion of his doctor, needs an operation for the removal of stones in the kidney. Dr. J. suggests that radiographs are necessary; also the services of a specialist, plus hospitalization.

Mr. X. arrives at the offices of the Service with a proper introduction from his doctor. Prior to an analysis of his ability to pay he is directed to the specialist recommended by Dr. J., who will estimate the cost of his work. Other costs are also ascertained. The budget consultant of the Service will then make an analysis of Mr. X.'s financial situation. Upon the facts obtained from Mr. X. and other sources at the disposal of the Service, the consultant determines that Mr. X. can pay \$200 for services which at regular rates would total \$300, in monthly installments over a period of ten months.

Dr. J., the family physician, Dr. B., the specialist, Dr. R., the roentgenologist, Dr. O., the pathologist, and the hospital, are informed of the patient's financial situation. With their approval an agreement is entered into between the Service and the patient. As payments are made by Mr. X. to the Service, they will be credited to his account and distributed pro rata to those who have rendered service.

There are variations from this hypothetical case in actual practice. For example: a number of patients will not require some of the laboratory procedures, and others will not require hospitalization. Fundamentally, the procedure to be followed is the same.

Keep in mind that the Service sets no fee for the doctor, hospital or any of the participants, it being understood that charges to be made are those which would ordinarily be made to persons in similar circumstances. It has been the experience of bureaus in other cities, similar to Medical Service, that the majority of patients do not need to have their bills reduced if they are given the privilege of paying in monthly installments.

If a patient has no family physician and comes directly to the Service, he will be given a list of Society members from which he may choose the physician he wishes to attend him. When this choice has been made the physician will be called and informed of the circumstances, suggesting that the Service will be glad to cooperate with him if he so desires.

Each individual case will be judged on its own merits and arrangements made accordingly—always, however, with the approval of those giving service.

It would seem that it would be advantageous for some of our county societies to inaugurate similar plans.

#### COMPONENT COUNTY MEDICAL SOCIETIES

##### HUMBOLDT COUNTY

The Humboldt County Medical and Dental Societies met on the afternoon and evening of October 7 in joint meeting at the Humboldt Golf and Country Club, with the president, J. S. Woolford, presiding.

Fifteen dentists and nine physicians were present. Golf was played in the afternoon, followed by a chicken dinner at 6:30 o'clock.

At eight o'clock papers were read by Drs. L. P. Monson and Don Aubertine on the subject, *Pathology and Treatment of Oral Sinusitis as Taken From the Medical and*

*Dental Point of View.* The subject was widely discussed, especially by the dentists.

This was followed by remarks from Dr. Charles Falk, Sr., president of the local Public Health League. Doctor Falk presented Doctors Cushman and Gurley, who gave very excellent reports on new legislation which was to be presented to the public, and of vital interest to the dental and medical societies.

LAWRENCE A. WING, *Secretary.*

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#### PLACER COUNTY

The annual meeting of the Placer County Medical Society was held Saturday evening, November 7, at the Freeman Hotel, Auburn. The meeting was called to order by the president, Louis E. Jones, at 8:20 o'clock. In addition to President Jones there were present the following members and visitor:

Members—Drs. L. W. Empey, R. H. Eveleth, P. D. Barnes, Ray C. Atkinson, Vernon W. Padgett, Robert A. Peers, Daniel L. Hirsch, B. W. Hummelt, D. M. Kindopp, Mildred E. Thoren, Harold L. Karo, Max Dunievitz, C. C. Briner, W. M. Miller, J. A. Russell, and C. E. Lewis.

Visitor—Dr. John Napier of Auburn, principal of the Placer Union High School, who had been invited by the secretary to meet with the members of the Society to discuss the presence of the scarlet fever epidemic among high school and grammar school students of Auburn.

Doctor Napier explained the control measures which are being taken to protect the Student Body, and asked for full cooperation of the members of the Society. This cooperation was promised.

Following the approval of the minutes of the meeting of July 11 and of the secretary's and treasurer's reports, the application of Dr. A. S. Churchill of Weimar for membership was read for the first time.

There were a number of case reports by various members.

This being the annual meeting, election of officers was held and the following were unanimously elected: Dr. C. E. Lewis of Auburn, president; Dr. William M. Miller of Auburn, vice-president; Dr. Robert A. Peers of Colfax, secretary-treasurer.

There was no election for delegate and alternate, as Doctor Empey of Roseville and Dr. Mildred E. Thoren of Weimar, delegate and alternate, respectively, hold over for one more year.

Dr. Ray C. Atkinson and Dr. C. C. Briner presented a moving picture, showing *Technique of Suprapubic and Vaginal Hysterectomy*. A vote of thanks was tendered Doctors Atkinson and Briner.

There being no further business the meeting adjourned for refreshments.

ROBERT A. PEERS, *Secretary.*

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#### SACRAMENTO COUNTY

The regular meeting of the Sacramento Society for Medical Improvement was called to order by the vice-president, Dr. Ray M. Wallerius, at the Auditorium on Twenty-ninth and L streets on October 9, with sixty members and guests present.

The paper of the evening was presented by Dr. Edward F. Roberts of New York City, a member of the professional staff of the Lederle Laboratories. He spoke on *The Management of Pneumonia* and on *Pernicious Anemia*, and his discussion was illustrated with motion pictures. The papers were discussed by Doctors Gundrum, Primasing, Pulford, Railsbach, Reardan, and Scatena.

The application of Dr. Charles V. Soracco of Placerville was read for the second time and voted upon. He was unanimously elected to membership in the Society.

A card was received from the family of our late member, Dr. Hugh Beattie, expressing appreciation for the Society's floral tribute.

A letter from Dr. Etta Farmer of Folsom was read, presenting a gavel to the Society.

A letter from Doctor Warnshuis, advising approval of the Intercoast Hospitalization Insurance Association by the Council of the California Medical Association, was read.

NORRIS R. JONES, *Secretary.*

#### SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the Santa Maria Club, Santa Maria, Monday evening, October 12, President Gray presiding.

This was a dinner meeting, under the auspices of a group of the Santa Maria members, and the refreshments and the barbecued meats were excellent. A most enjoyable time was had by all.

The speaker of the evening, Dr. John Renshaw of Los Angeles, held his audience fascinated with his interesting and instructive description of the *Gastroscope*, vividly illustrating with colored slides the differential diagnosis of the gastric disorders.

Doctor Renshaw was highly complimented by the membership for his original research work in this field, and it was felt that his availability to the profession of Southern California would be of great value in the early diagnosis of gastric malignancies.

The Santa Maria group are to be congratulated for a most successful and enjoyable meeting.

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The regular meeting of the Santa Barbara County Medical Society was held Monday evening, November 9, in the Bissell Auditorium, President Gray presiding.

President Gray called upon Dr. Caleb Stone to introduce the speaker of the evening, Dr. Dorrell Dickerson of Los Angeles.

Doctor Dickerson gave an extremely interesting and comprehensive talk upon *Intracranial Tumors*, illustrated with lantern slides.

Discussion followed by Drs. Clark, Geyman, Hamilton, Van Paing, Stone, Brush, and Koefod.

Doctor Ullmann, as counselor, reported upon the present status of hospital insurance and advised that the Society take action.

Doctor Markthaler, reporting for Doctor Robinson of the Hospital Insurance Committee, said that the Board of Directors of the Alameda Hospital Insurance group advised against Santa Barbara County joining with that group at this time.

The secretary was instructed to read the action taken by the Council of the Santa Barbara County Medical Society regarding hospital insurance, and Doctor Gray reported that the two hospitals were willing to cooperate, provided they could see a complete copy of the proposed plan, and provided that the plan was endorsed by the County Society.

It was moved, seconded and carried, that the Hospital Insurance Committee be empowered to take any necessary action regarding the adoption of any hospital insurance plan, such action to be under the supervision of the Council.

The minutes of the last Council meeting were read, and then further discussed by Doctor Freidell. The Santa Maria school contract was discussed, but no action was taken, as the legality of the proceedings was referred to the state councilor for an opinion.

Doctor Hare, reporting for the Publicity Committee, said that speakers were being assigned whenever necessary.

Drs. C. W. Henderson, P. F. Munch, Lester Jankay, and Walter M. Anderson were elected to membership.

WILLIAM H. EATON, *Secretary.*

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#### SHASTA COUNTY

The meeting of the Shasta County Medical Society was held Monday, November 9, in the office of Doctor Hansen, Redding, with President M. D. Pratt presiding.

The most important business of the meeting was the election of officers. Dr. O. J. Hansen was elected president for 1937; Dr. C. C. Gerrard, vice-president; and Dr. L. J. Seeley, secretary-treasurer.

The following resolution was passed unanimously:

WHEREAS, There has been presented to this Society a determination by the California Medical Association that the dues to the State Association for 1937 shall be \$15 instead of \$10; and

WHEREAS, Dues in the past have not been productive of sufficiently beneficial results to the medical profession to

justify even a State annual assessment of \$10; therefore be it

*Resolved, That the Shasta County Medical Society hereby protests prospective increase in dues as unjustified and unwarranted.*

SHASTA COUNTY MEDICAL SOCIETY.  
By Leslie J. Seeley, *Secretary-Treasurer*.

Dr. M. D. Pratt was given a vote of thanks by the Society for his faithful devotion to duty as president for the past two years. It is worthy of note that Doctor Pratt did not miss a single meeting of the Society in that time and that he had to drive 150 miles in order to attend those meetings.

LESLIE J. SEELEY, *Secretary*.



#### SOLANO COUNTY

The regular meeting of the Solano County Medical Society, held November 10 at the Casa de Vallejo Hotel, was given over to matters pertaining to the conduct of the Society, and no professional discussion was held.

The annual election of officers resulted in the election of Dr. Herman B. Perkins of Vallejo as president; Dr. Carlton Purviance of Fairfield, vice-president; and Dr. John W. Green of Vallejo, secretary-treasurer.

Doctor Green was also chosen as delegate to the 1937 session of the California Medical Association, and Dr. Arvil E. Chappell, retiring president, was chosen as alternate.

JOHN W. GREEN, *Secretary*.



#### TULARE COUNTY

The regular meeting of the Tulare County Medical Society was held on Sunday, October 14, at Motley's Café in Visalia.

In attendance were Doctors Hill, Cronmiller, A. Bond, A. Miller, Furness, Ginsburg, P. Miller, N. Miller, Fillmore, Weiss, Glaser, Matthias, Rosson, Lipson, Preston, Watke, Kohn, Guido, Falk, Zumwalt, and McClure.

Dr. Mark A. Glaser of Los Angeles presented a paper on the *Newer Aspects of the Etiology and Surgical Treatment of Convulsions*. Many lantern slides were used to illustrate the talk, which was well received, and led to a general round-table of discussion.

Dr. A. E. Anderson of Fresno, district councilor, was present and outlined the activities of the Council, particularly with reference to the hospital insurance plan and other proposed legislation.

A vote was taken on the proposed amendment to our by-laws regarding a code of disciplinary procedure, and this was unanimously carried.

KARL F. WEISS, *Secretary*.

#### CHANGES IN MEMBERSHIP

##### New Members (42)

*Alameda County*.—Dean E. Hart, William J. Kennedy, Joseph L. Marriott, Charles Newell Mell.

*Kern County*.—Eric F. Colby, Carl Louis Moore.

*Los Angeles County*.—Madeline J. Algee, Montrose M. Bernstein, Fred E. Bradford, George C. Brandt, Albert F. Brown, Claude C. Bunch, P. Price Cobbs, Charles L. Cooper, Frank J. Costa, Michael M. Gurdin, George W. Hewitt, Arthur H. Hurd, Lester Jankay, Russell Johnson, Francis X. McDonald, Clarence H. Nelson, Edward S. Powers, James F. Presnell, Ethel R. Schlesinger, Lawrence W. Smith, M. J. Speigel, Beatrice M. A. Tomblin, Carrol L. Weeks, John Wilbur Whitsett.

*Monterey County*.—Edwin M. Chase, Howard E. Clark, Frank Hilton Smith.

*Riverside County*.—Howard A. Wood.

*San Francisco County*.—Robert D. Dunn, Russell F. Jaekle, John Edward McGuinness, Ambrose Merrill, Lester Sawyer, Lydia Shimkin, William Sullivan.

*Santa Clara County*.—Harold R. Carter.

##### Transferred (1)

Elliot Rouff, from Monterey County to Santa Clara County.

## In Memoriam

**Beard, John Lyman.** Died at Berkeley, November 9, 1936, age 49. Graduate of the Hahnemann Medical College of the Pacific, San Francisco, 1913, and licensed in California the same year. Doctor Beard was a member of the Contra Costa County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.



**Goodenow, Norman H.** Died at Eagle Rock, October 14, 1936, age 66. Graduate of Rush Medical College of the University of Chicago, 1892. Licensed in California in 1920. Doctor Goodenow was an honorary member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

## THE WOMAN'S AUXILIARY TO THE CALIFORNIA MEDICAL ASSOCIATION†

### County Auxiliary Letters

#### *Alameda County*

The first general meeting of the Woman's Auxiliary to the Alameda County Medical Association was held at the Claremont Country Club on September 18.

Luncheon was served to sixty-four Auxiliary members. Each table had been individually decorated with mixed flowers of the season. Mrs. Clarence Page presided.

The following recommendations were presented to the Auxiliary:

1. The Executive Board recommends to the Auxiliary the payment of \$15 for membership in the Public Health League of California. The recommendation carried.

2. The Executive Board recommends that a year book be printed and that the president appoint a special committee to handle the work. The recommendation carried.

3. The Executive Board recommends that the Student Loan Fund be changed to a Scholarship Fund. After discussion a committee was appointed by Mrs. Page to investigate the matter of Scholarship and Loan Funds, and report at the next meeting.

4. The Executive Board recommends that billheads be printed for Auxiliary use in sending out notices for dues. The recommendation carried.

Mrs. J. R. Henry gave a brief colorful report of the convention held in May in Coronado.

Mrs. Baxter, as general program chairman, gave an outline of the programs to be given for the ensuing meetings.

The aims and purposes of the Auxiliary were brought before the members in a very decisive and interesting way by means of a dialogue between Mrs. Page and Mrs. Baxter.

Mr. Ben Read of the Public Health League of California spoke on "Who's Who, What's What, and Why." His talk dealt with the structure of the State Legislature and of the enormous number of bills which are presented at each session, many of which directly or indirectly affect the practice of medicine. He stressed three vital issues which are coming up for voting and asked the Auxiliary to help in campaigning against them. He also stated that the Auxiliary could be of great help in instructing those

†As county auxiliaries of the Woman's Auxiliary to the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Robert M. Furlong, chairman of the Publicity and Publications Committee, Linden Lane, San Rafael. Brief reports of county auxiliary meetings will be welcomed by Mrs. Furlong and must be sent to her before publication takes place in this column. For lists of state and county officers, see advertising page 6. The Council of the California Medical Association has instructed the editor to allocate two pages in every issue for Woman's Auxiliary notes.

who are elected from our local districts as to the problems of legislation where it affects medicine.

Mrs. Albert Meads, honorary member of our Auxiliary, asked for continued cooperation from the Auxiliary in helping to get out Christmas Seals for the Tuberculosis Association.

There was no further business and the meeting adjourned to meet in November.

The annual husbands' dinner given by the Auxiliary to the Alameda County Medical Association was held on Thursday, October 29, at the Claremont Country Club in Oakland.

Mrs. Clarence W. Page, the newly elected president of the Auxiliary, presided at the speakers' table. Seated with her were: Doctor Page, Dr. and Mrs. A. A. Alexander, the latter president-elect of the Auxiliary; Dr. and Mrs. W. E. Mitchel, the former president of the Alameda County Medical Association; Dr. and Mrs. Thomas Clark, the latter past president of the State Auxiliary; Dr. and Mrs. Frank Baxter, the latter first vice-president of the Auxiliary; Dr. Gertrude Moore, secretary of the Alameda County Medical Association; Dr. and Mrs. Don Weaver, the latter program chairman for the husbands' dinner, and the guest artists for the evening.

After the introductions at the speakers' table, Mrs. Page called upon Doctor Mitchel, who responded with a very splendid tribute to the wives of all doctors.

There were two hundred Alameda County doctors and their wives present at the dinner. Mrs. Maxwell Thebaut, as chairman of the decoration, had made the clubroom most attractive and festive by each table having as its centerpiece a golden pumpkin filled to overflowing with the fruits and the grains of the harvest season. Indirect colored lights and tall candles threw soft gleams over the assembly.

The entertainment for the evening was provided by three National Broadcasting Company artists. Benny Walker, editor of the Woman's Magazine of the Air, who gave clever impersonations of "Little Benny," and who was also master of ceremonies for the evening; Miss Jean Cowan, who sang several songs very delightfully, playing her own accompaniments; Armand Girard, baritone, assisted by Mrs. Girard, who thrilled the guests by his very splendid rendition of "Home on the Range," "Glory Road," and "Old Man River."

At the close of the dinner a social half-hour was spent, every one most enthusiastic over the enjoyable evening spent together.

MRS. JOHN OHANNESON, *Chairman of Publicity.*

#### *Contra Costa County*

The Contra Costa County Auxiliary met on Tuesday evening, November 10, at the home of Mrs. C. R. Blake for an enjoyable social evening.

Members present played contract, and prizes were won by Mrs. H. L. Carpenter and Mrs. L. A. Hedges. Refreshments were served by Mrs. Blake.

A dinner, put on by the Contra Costa County Medical Society, will be held December 12, and members of the Auxiliary will be guests. Scene of the dinner will be the Orinda Country Club.

#### *Fresno County*

The Fresno County Auxiliary was delighted last week to receive a visit from our state president, Mrs. Thornton. Mrs. Thornton was the house guest, while in Fresno, of Mrs. George Walker.

Our meeting on November 4 was in the form of a luncheon, held at the Sunnyside Country Club, with Mrs. Thornton as our guest speaker. The group was so very interested in all that she had to tell us of the aims and ideals, the founding and progress of the Auxiliary. A group of musical selections was heard throughout the luncheon.

In October the program was an unusual and an entertaining one. Mrs. C. M. Vanderburgh, Program Chair-

man, brought before the group a debating team quite well known throughout the valley. These boys debated the question, *Resolved, That the various states should enact suitable legislation to furnish adequate medical care.* Both sides of the question were well prepared and admirably presented. Considering the strong opinions and prejudices of the audience, the affirmative upheld his points bravely.

A benefit card party is being planned for December, with the Hygeia Committee, headed by Mrs. A. T. Goldberg, in charge. The proceeds will purchase *Hygeia* subscriptions to be placed in libraries, schools, and beauty parlors. We are hoping to have an excellent report of this party for the next issue.

MILDRED DIEDERICH, *Secretary.*

#### *Los Angeles County*

The Woman's Auxiliary to the Los Angeles County Medical Association had a delightful meeting Tuesday, October 27, at the Uplifters Ranch in Santa Monica, with 152 present, and with Mrs. Andrew J. Thornton, president of the State Auxiliary, as guest of honor. In answer to the cordial invitation sent out to eligible members, twenty-three new members were added to the roll, and many more were guests. Luncheon was served at twelve o'clock.

Mrs. Harold Crowe, chairman of the Social Welfare Committee, announced plans for the Thanksgiving baskets to be given to thirty families of doctors on relief in the county. She asked for donations of canned goods, sweets, or small packages of staples.

The president, Mrs. Wright, introduced Mrs. Thornton, who spoke briefly on the importance of individual members educating the public in an unofficial way in the interest of scientific medicine.

The chief speaker of the day was Mrs. Steele Stewart, whose interesting subject was *The Medical Set-Up in Hawaii.*

Special music was arranged by Santa Monica members.

MRS. ROBERT L. CARROLL, *Chairman of Publicity.*

#### *Marin County*

On Thursday evening, October 22, the Woman's Auxiliary to the Marin County Medical Society met with the Marin County Public Health League at a dinner meeting held in the Marin Golf and Country Club, San Rafael.

An attendance of approximately one hundred members and guests filled the dining room of the Club to its seating capacity. All business of the individual branches was dispensed with.

Before introducing the speakers of the evening, Dr. Scott Pollard, president of the Marin County Public Health League, expressed his appreciation of the display of interest shown and congratulated the Woman's Auxiliary on its growth, commending the members not only for their own attendance, but also for an increased attendance on the part of members of the Medical Society since the Auxiliary was organized.

The main speakers of the evening were: Dr. Alson Kilgore, Doctor Johnson, treasurer of the League, and Mr. Ben Read.

B. M. ROBERTSON, *Chairman of Publicity.*

#### *Orange County*

More than twenty-five members of the Woman's Auxiliary to the Orange County Medical Association met at the home of Mrs. Harry G. Huffman.

The Huffman home was beautifully decorated with dahlias of all varieties, sent from the famous dahlia gardens of Dr. and Mrs. G. Emmett Raitt.

Mrs. K. H. Sutherland, new president of the group, conducted a short business meeting, at which she introduced her new fellow officers, including Mrs. D. C. Cowles of Fullerton, vice-president; Mrs. L. E. Wilson of Santa Ana, treasurer; and Mrs. G. E. Raitt of Santa Ana, secretary.

Mrs. E. H. Kirsten of Anaheim, program chairman, introduced Mr. Ben Read, executive secretary of the



Public Health League, who discussed pending legislation. Miss Kate Rea of Anaheim, southern district chairman of education of the Federated Women's Clubs, also spoke briefly on proposed amendments.

Other prominent guests introduced to the doctors' wives included a group of San Diego women, all Auxiliary officials. They were Mrs. A. J. Thornton, state president; Mrs. W. H. Newman, state corresponding secretary; Mrs. T. J. Lindemulder, president of the San Diego Auxiliary; and Mrs. C. E. Howard, past president of the San Diego Auxiliary.

At the conclusion of the afternoon's program, Mrs. Huffman served a delicious tea course, with the assistance of her cohostesses, Mrs. Dexter Ball, Mrs. R. C. Harris, Mrs. K. H. Sutherland, and Mrs. G. E. Raitt.

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#### *Sacramento County*

The regular meeting of the Sacramento Medical Auxiliary was held at the home of Mrs. Hilding Johnson at 8 p. m., September 15.

The minutes of the last meeting were read and approved. Mrs. Brown announced that Mrs. Edward Babcock had been appointed to serve on a board of directors to replace Mrs. Brendel, who has moved to Berkeley.

Letters were read from the secretary of the Community Chest and the Braille Publishing Company thanking us for our donations.

Mrs. Scatena gave the treasurer's report as follows: Savings account, \$77.39; commercial account, \$99.08.

Mrs. Krull gave the report on work being done at the library at the County Hospital, which now has 304 books and which is well supplied with magazines.

Mrs. Brown reported on work that had been done for the Red Cross during the State Fair. The women served at the booth for lost children at the Fair. Mrs. E. D. Edson told us of the campaign being conducted by the Tuberculosis Association to give skin tests to all school children.

Following the business meeting we were entertained by a review on new books.

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Mrs. JOHN D. LAWSON.

#### *San Francisco County*

The next several meetings of the Woman's Auxiliary of the San Francisco County Medical Society will be luncheon meetings. The first will be held at the Western Women's Club on November 17, at which time we will have as guest speaker, Dr. Ray Lyman Wilbur. The December 8 meeting, also to be held at the Western Women's Club, will have as its speaker Mrs. A. C. Reed, who will give a book review on "My Great Wide Beautiful World" by Juanita Harrison.

At present the round-table discussions, held on every Wednesday morning at the County Medical Society building, are claiming the interest of the members.

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#### *Santa Barbara County*

The Woman's Auxiliary to the Santa Barbara County Medical Society has been bending all its energies this fall to the plans for a Health Institute, to be held on October 23 and 24. At each meeting, plans have been discussed and suggestions made and committees appointed. Mrs. Richard McGovney is general chairman for Arrangements; Mrs. John Van Paing, chairman of Exhibits; Mrs. Charles S. Stevens, chairman of Hostesses; Mrs. Horace Pierce, Decorations; Mrs. H. E. Henderson, Publicity. Mrs. Edward Markthaler and Mrs. Frank Hombach have given especial assistance to Mrs. McGovney in personal contacts with cooperating agencies and financial arrangements.

On September 4 the president, Mrs. William R. Hunt, entertained the members of the Board at luncheon at her home, when plans for the year's work were made. The first regular meeting of the year was at the home of Mrs. Richard McGovney, following a barbecue luncheon. It was decided to hold the monthly business meetings on the

first Wednesday morning of the month at the Public Library, after which those members who so desire may attend the luncheon meeting of the Health Section of the County Council of Social Agencies. In this way duplication of programs will be avoided.

A pleasant social function was the dinner in Santa Maria on October 12, at which the doctors' wives from Santa Barbara met several from Santa Maria and several from San Luis Obispo County. The occasion was a joint meeting of the Santa Barbara and San Luis Obispo County Medical Societies at the Santa Maria Club, their wives dining at the Santa Maria Inn. No formal meeting was held, but the ladies from the North were told of the activities of the Santa Barbara doctors' wives, with whom they have not heretofore joined.

This meeting followed the regular October monthly business meeting on Wednesday, the 7th, at the Public Library at 10 a. m. The business centered around plans for the Health Institute, which were outlined by the chairman, Mrs. Richard McGovney.

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The regular monthly business meeting of the Santa Barbara Auxiliary was held in the Board Room of the Public Library at 10:30 o'clock, November 4, nine members being present. Reports were given of the Health Institute, which was held on October 24 and 25. They showed a balance of about \$50 of receipts over disbursements, and it was agreed to put this into a special fund to start the next Health Institute with. Letters of thanks have been written to all agencies and persons cooperating, and suggestions were made for improvements to be made another year. Plans were announced for the membership tea, to be given by one of our members at her home on November 20, to which the wives of all doctors and internes in the county will be invited. Invitations are to be mailed to all, and then all are to be called on the telephone in order that members may take nonmembers to the tea in their cars.

Eight members took part in the Red Cross membership drive on November 12. The president, Mrs. William R. Hunt, entertained at tea on November 5 all Health chairmen in the Parent-Teacher Association Council, when she impressed on them the importance of each school taking a subscription to *Hygeia*, and also the importance of at least one Health program in each Parent-Teacher Association every year. The superintendent of schools and the school physician are cooperating in the *Hygeia* campaign. Our president is Health chairman for the Parent-Teacher Association Council in Santa Barbara.

ELISABETTA P. HENDERSON, *Publicity Chairman*.

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#### *Santa Clara County*

The Board of Directors met previous to the regular meeting, to pay bills; elect a new corresponding secretary; fill a vacancy on the Board—one member resigning; and hear the report of the chairman of the Auditing Committee.

The regular meeting was a luncheon held at the San Jose Country Club, forty-two members being present.

After routine business was disposed of, Mrs. Shepherd gave a report of the State Board meeting held in Santa Monica in September.

The guest speaker for the day was Mrs. William P. Butler, who spoke on *Impressions of Modern Medical Literature*.

\* \* \*

Report of the regular meeting of the Woman's Auxiliary to the Santa Clara County Medical Association.

The meeting was an informal musicale and tea held at the St. Claire Hotel on November 2. Forty members were present.

Routine business was disposed of and at which time it was voted to sponsor a tea in honor of the Santa Clara County Nurses' Association, November 25.

A half-hour of informal music was presented by a trio of young people, after which tea was served.

MRS. DANIEL BILKER, *Secretary*.

## MISCELLANY

Under this department are ordinarily grouped: News Items; Letters; Special Articles; Twenty-five Years Ago column; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the fifteenth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

## NEWS

### Coming Meetings

*American Medical Association*, Atlantic City, New Jersey, June 7-11, 1937. Olin West, M. D., 535 North Dearborn Street, Chicago, secretary.

*California Medical Association*, Del Monte, May 2-5, 1937. F. C. Warnshuis, M. D., 450 Sutter Street, San Francisco, secretary.

*Western Surgical Association*, Kansas City, Missouri, December 11-12. A. H. Montgomery, M. D., 122 South Michigan Boulevard, Chicago, secretary.

### Medical Broadcasts\*

#### *American Medical Association*

The American Medical Association and the National Broadcasting Company are presenting the second series of dramatized health broadcasts, under the title "Your Health." The first broadcast in the new series, the thirty-second dramatized cooperative broadcast under the title "Your Health," was given October 13. The theme for 1936-1937 differs slightly from the topic in the first series, which was "Medical Emergencies and How They Are Met." The new series is built around the central idea that "one hundred thousand American physicians in great cities and tiny villages, who are members of the American Medical Association and of county and state medical societies, stand ready, day and night, to serve the American people in sickness and in health."

The program will be on the Blue network instead of the Red, as originally announced.

The topics are announced monthly in advance in *Hygeia*, the health magazine, and three weeks in advance in each issue of the *Journal of the American Medical Association*.

The time of the broadcast is Tuesday afternoon, two o'clock, Pacific time.

#### *San Francisco County Medical Society*

A radio broadcast program for the San Francisco County Medical Society for the month of December is as follows:

Tuesday, December 1—KYA, 6 p. m.  
Tuesday, December 8—KYA, 6 p. m.  
Tuesday, December 15—KYA, 6 p. m.  
Tuesday, December 22—KYA, 6 p. m.  
Tuesday, December 29—KYA, 6 p. m.

#### *Los Angeles County Medical Association*

The radio broadcast program for the Los Angeles County Medical Association for the month of December is as follows:

Tuesday, December 1—KECA, 10:30 a. m. Subject: The Road of Health.  
Saturday, December 5—KFI, 9 a. m. Subject: The Road of Health.  
Saturday, December 5—KFAC, 10:15 a. m. Subject: Your Doctor and You.  
Tuesday, December 8—KECA, 10:30 a. m. Subject: The Road of Health.  
Saturday, December 12—KFI, 9 a. m. Subject: The Road of Health.

\* County societies giving medical broadcasts are requested to send information as soon as arranged (stating station, day, date and hour, and subject) to CALIFORNIA AND WESTERN MEDICINE, 450 Sutter Street, San Francisco, for inclusion in this column.

Saturday, December 12—KFAC, 10:15 a. m. Subject: Your Doctor and You.

Tuesday, December 15—KECA, 10:30 a. m. Subject: The Road of Health.

Saturday, December 19—KFI, 9 a. m. Subject: The Road of Health.

Saturday, December 19—KFAC, 10:15 a. m. Subject: Your Doctor and You.

Tuesday, December 22—KECA, 10:30 a. m. Subject: The Road of Health.

Saturday, December 26—KFI, 9 a. m. Subject: The Road of Health.

Saturday, December 26—KFAC, 10:15 a. m. Subject: Your Doctor and You.

Tuesday, December 29—KECA, 10:30 a. m. Subject: The Road of Health.

**The San Francisco Medical History Seminar.**—On November 18, 1936, the San Francisco Medical History Seminar gave a luncheon in honor of Dr. Maude E. Abbott, Curator of the Medical Museum at McGill University, Montreal. Doctor Abbott, who has made many important contributions to the history of medicine and nursing, addressed the Seminar on "The Young Osler."

**Five States Receive Over Six Million Dollars in Social Security Funds.**—The Federal Social Security Board, under date of October 28, announces: Federal grants totaling \$6,824,239.30 to Alabama, California, Massachusetts, South Dakota, and New Jersey for assistance to the needy aged, the blind, and to dependent children were announced by the Social Security Board recently.

The states receiving funds, the amounts granted, and the number of persons who, it is estimated, will be helped are shown in the following table:

State	Aid to	Federal Grant	Estimated Number of Persons to Receive Aid
Alabama.....	{ Aged Children	\$ 241,412.59 71,735.73	12,000 17,500
California.....	{ Aged Blind Children	3,858,435.00 209,506.50 409,825.50	53,900 4,300 22,300
Massachusetts.....	{ Aged Blind	1,740,945.24 26,158.82	27,800 1,050
South Dakota.....	Aged	249,889.50	7,933
New Jersey.....	Blind	16,330.42	494
Total.....		\$6,824,239.30	147,277

The grants-in-aid to Alabama, California, Massachusetts, and South Dakota present the federal share of the states' public-assistance expenditures for the current quarter, October 1 to December 31.

During October, it is estimated that 1,362,189 individuals—989,532 aged, 29,721 blind, and 342,936 dependent children—will be aided in the forty-three states now operating one or more plans under the federal-state public-assistance program. The Social Security Board has approved forty-two state plans for aid to the needy aged, twenty-six state plans for aid to the needy blind, and twenty-seven state plans for aid to dependent children in their own homes.

Under these plans, approximately half the cost of the states' aid to the aged and blind and one-third the cost of the states' aid to dependent children is paid by the Federal Government. Since February a total of \$87,757,130.27 of federal funds has gone to cooperating states to aid them in financing their approved state programs for these three forms of assistance. Of this amount \$78,162,444.78 was for the aged, \$2,923,753.29 for the blind, and \$6,670,932.20 for dependent children.

**Colorado State Medical Society.**—The Executive Committee and the Advisory Board of the Colorado State Medical Society jointly have fixed July 19, 20, and 21, 1937, as the dates for the Rocky Mountain Medical Conference.

The Rocky Mountain Medical Conference is to be a joint meeting of the Colorado State Medical Society, the New Mexico Medical Society, the Utah State Medical Association, and the Wyoming State Medical Society, to which members of the recognized societies of adjoining states will also be invited.

**California Department of Industrial Relations.**—The last report to the Governor's Council contained the following item:

*Division of Immigration and Housing.*—During the month of August, 66 labor camps were inspected; 15 camps were listed as good, 26 fair, and 25 bad. Of the total number of camps inspected, 54 were old camps and 12 new ones. In the camps inspected it was found that 2,302 occupants were American-born, while 748 were foreign-born, making a total of 3,050, of which 1,567 were men, 766 women, and 717 children.

During the month 44 automobile camps were inspected; 26 were listed as good, 11 fair, 4 bad, and 3 closed. Ten housing inspections were made.

A considerable portion of the month was taken up with matters having to do with proposed changes to the State Housing Law. This work has necessitated much careful study and thought, not only to the proposed changes themselves, but to the planning of a campaign designed to bring about their adoption in the Legislature without any major opposition. This has meant much correspondence and the holding of many conferences with individuals and groups who are favorable to our work. The proposals are now ready for mimeographing and will be distributed shortly for criticism. The main features have been discussed with the Attorney-General's office and received verbal approval.

**Lactic Acid From Whey.**—Lactic acid, a chemical used largely in the leather and textile industries, was first identified 150 years ago in sour milk and has been made in the United States for fifty-five years or more, but surprisingly it has never been made commercially from milk until within the last year.

Recently, at the Dairy Industries Exposition at Atlantic City, New Jersey, scientists of the United States Bureau of Dairy Industry demonstrated methods they have developed for making lactic acid and related chemicals from whey.

Whey, a byproduct from cheese and casein manufacture, has been considered for years one of the greatest sources of trouble and waste in the dairy industry. Dairy scientists have long felt there were great possibilities for a new industry within the dairy industry, based on fermenting the milk sugar contained in the whey. A few years ago the Bureau developed the fundamental information for making lactic acid commercially, and has since made further refinements in its process. Last year a large dairy organization handling enormous quantities of surplus milk began making lactic acid and calcium lactate from whey on a commercial scale. The whey in this case is a byproduct from the manufacture of casein from skim milk.

Materials most commonly used for the production of lactic acid at present are molasses, cornstarch, and other sources of fermentable sugar. Lactic acid not only has many uses itself, but it is the material from which other chemicals may be made. Its chief use perhaps is in the leather industry, where its function is to neutralize the lime used in removing the hair from hides. It also is used in the textile industry, in baking, in hardening pickles, in medicinal preparations, and in beverages sold at soda fountains. Some of the chemicals made from lactic acid are useful in making lacquers.

Recently, the Bureau scientists have shown how lactic acid may be concentrated to a greater degree than it is at present. Instead of an acid containing from 50 to 75 per cent water, plus some impurities, producers are now enabled to make an acid containing no water and fewer impurities. This applies to lactic acid made from the usual materials as well as to that made from whey.

**Medical Stamp Exhibit.**—A special exhibit of postage stamps relating to medicine has been arranged in the University of California Medical School Library. It includes some seventy-five items, mostly from the collection of Dr. K. F. Meyer, Director of the Hooper Foundation for Medical Research, who is an ardent philatelist. Many countries have issued stamps commemorating medical events or physicians of prominence. Nearly all of these are on view in the exhibit. It is believed that this exhibit is the first of its kind to be assembled.

**Southern California Medical Association.**—The ninety-fifth semiannual meeting was held Friday and Saturday, October 30 and 31, at the permanent quarters building of the Los Angeles County Medical Association, 1925 Wilshire Boulevard, Los Angeles.

The program follows:

#### *October 30—Friday Afternoon Session*

Immediate Repair of Divided Nerves and Tendons of the Hand—J. Edwin Kirkpatrick, M. D., Los Angeles.

Discussion by Paul E. McMaster, M. D., Los Angeles; Hugh Toland Jones, M. D., Los Angeles.

Normal Hematologic Standards with Discussion of Variations Due to Physiologic Changes—A. G. Foord, M. D., Pasadena.

Discussion by W. M. Butt, M. D., Los Angeles; J. W. Budd, M. D., Los Angeles.

What May We Expect From the Treatment of Tumors of the Bladder—H. C. Bumpus, Jr., M. D., Pasadena.

Discussion by J. J. Crane, M. D., Los Angeles; A. J. Scholl, M. D., Los Angeles.

Proctology in General Medicine—C. N. Taylor, M. D., Los Angeles.

Discussion by A. J. Murietta, M. D., Los Angeles; W. H. Kiger, M. D., Los Angeles.

#### *Friday Evening Session*

Protamine Insulin and the New Era in Diabetes—Elliott P. Joslin, B. A., Ph. B., M. A., M. D., F. A. C. P., Clinical Professor of Medicine, Harvard Medical School.

#### *October 31—Saturday Morning Session*

Medical Aspects of the Business Cycle—Emil Bogen, M. D., Olive View.

Discussion by Phoebe Berman, M. D., Los Angeles; Reginald Smart, M. D., Los Angeles.

Results of Surgical Treatment of Hyperparathyroidism—Isaac Y. Olch, M. D., Los Angeles.

Discussion by C. J. Baumgartner, M. D., Los Angeles; C. S. Sturgeon, M. D., Los Angeles.

Anemia as a Cause of Angina Pectoris—Francis M. Smith, M. D., La Jolla.

Discussion by Franklin R. Nuzum, M. D., Santa Barbara; J. F. Anderson, M. D., Los Angeles.

General and Neurosurgical Consideration of the Cerebral Birth Palsies—Hans V. Briesen, M. D., Los Angeles.

Discussion by George H. Patterson, M. D., Los Angeles; John C. Wilson, M. D., Los Angeles.

#### *Saturday Afternoon Session*

Gastroscopy as an Aid in the Diagnosis of Malignant Lesions of the Stomach—John P. Renshaw, M. D., Los Angeles.

Discussion by Roland Cummings, M. D., Los Angeles; John C. Ruddock, M. D., Los Angeles.

Cesarean Sections in Los Angeles County—William Benbow Thompson, M. D., Los Angeles.

Discussion by H. K. Marshall, M. D., Glendale; Lyle C. McNeile, M. D., Los Angeles.

Allergic Study of Feather Protein—George Piness, M. D., Los Angeles.

Discussion by P. A. Gray, M. D., Santa Barbara; Robert W. Lamson, M. D., Los Angeles.

The Relationship of Low Basal Metabolic Rates to Allergic Diseases—Merrill W. Hollingsworth, M. D., Santa Ana; John Montanus, M. D., Santa Ana.

Discussion by Hyman Miller, M. D., Los Angeles; Francis Pottenger, Jr., Monrovia.

**New Welfare Set-Up to Head All Relief Is Asked for State.**—The creation of a State Department of Public Welfare to administer all phases of indigent, veterans, unemployment and transient relief, assistance to the aged and the blind and aid to dependent children, is suggested in a survey of welfare conditions in the State just completed by the Bureau of Public Administration of the University of California. The details of the survey, which covered several years' time, is included in a volume "Welfare Activities of Federal, State and Local Governments in California, 1850-1934." The survey was made by Frances Cahn, research associate, and Valeska Bary, former research associate in the Bureau, and is a complete record of public welfare work in the State from the coming of the Argonauts to the present day.

The new department is needed to obviate the present "lack of coordination of activities and a resultant duplication of effort and increased expenditures" occasioned by the present various state and county set-ups for relief and other aid. The present Department of Social Welfare, Department of Institutions, and Department of Military and Veterans' Affairs are held to ramify into each other to some extent. The survey points out that there is also need for the Department of Social Welfare and the different counties to establish comparable relief standards, policies, and methods.

The new department should likewise be given the right to license and supervise all private institutions for the aged and the mentally disordered, and should be given supervision of all county hospitals and almshouses, the survey states. It should also be given the supervision of all public and private child welfare activities, such as boarding homes, institutions, day nurseries and child-placing agencies and the supervision of adoptions, juvenile probation and parole and the operation of State correctional schools. While it would grant the counties autonomy in the administration of their welfare activities, it is suggested that such activities be made to conform to the minimum requirements set up by the new department, and by federal relief standards.

**Population in the United States to Reach Peak in 1950 and Then Decline.**—A declining national population is inevitable within fifteen years unless the birth rate should rise or immigration increase, according to Dr. O. E. Baker of the Bureau of Agricultural Economics.

"The birth rate has declined more than 25 per cent during the last ten years. If the birth rate continues to decline at this rate," Doctor Baker says, "a maximum population will be reached by 1945 or 1950. Thereafter, the population will decline; declining slowly at first, then at an accelerating rate."

A declining national population, with rural surplus and urban deficit in births, will have serious economic and social consequences in Doctor Baker's opinion.

These consequences will develop slowly and silently, he predicts, adding that it probably will be twenty-five years before many people will realize what is taking place.

"Fifty years from now," Doctor Baker says, "there may be only a third as many children in the nation as now, and only half as many women of child-bearing age. There will be nearly three times as many old people. Many unemployed urban people will seek shelter and sustenance with relatives and friends on farms. Many of these people will start little farms, and never again return to the cities to reside."

"Millions of farm youth will migrate to the cities, many of these migrants will inherit farms, or, through the settlement of estates, acquire mortgages on farms. Wealth—represented by the ownership of land or the income from it—will be transferred to the cities."

Doctor Baker says that other millions of farm youth will begin farming, mostly on farms vacated by the death of aged farmers. Unless these farms are acquired by inheritance, he declares, there will be an increasing number of tenants.

But there is a way to retard these ominous developments, in the opinion of this economist. "They can be retarded," he says, "by a rapid decentralization of population, industry, and commerce, by the spread of part-time farming, and by an appreciation by the middle and upper classes of their responsibility for the reproduction of the race and the welfare of the nation."

**The History of Science Dinner Club of Berkeley.**—Dr. Herbert Evans, who organized the very stimulating History of Science Dinner Club in Berkeley, has arranged a program for this winter which carries along the general theme of last year's discussion. Special emphasis was placed last year on the relations of science and philosophy in the eighteenth and early nineteenth centuries. This year the latter part of the nineteenth century will be included. A consistently pleasing feature of the meetings has been an informal display of rare and interesting scientific literature.

**Neutron Radiation Proves Effective on Mouse Sarcoma.**—Joint experiments conducted by the Yale University Department of Internal Medicine and the University of California have determined that neutron radiation is four times as effective as the x-ray in the experimental destruction of mouse sarcoma 180, a cancerous-like growth, but that much remains to be developed regarding the action of such radiation on the healthy tissue.

The experiments were conducted for the University of California by Professor Ernest O. Lawrence, director, and Paul C. Aebersold, assistant in the Radiation Laboratory of the University of California, and Dr. John H. Lawrence of the Department of Internal Medicine, Yale University.

"It was the primary purpose of this investigation to determine relative doses of both neutron rays and x-rays required to kill mouse sarcoma 180," the statement covering the experiments declares. "In other words, these experiments were concerned with dosage ratios rather than absolute values. It was a question only of comparing the radio sensitivity of the tumor with that of the healthy mouse for the two kinds of radiation."

"It was generally noted that with the higher doses of neutron the tumors grew less rapidly when compared with tumors irradiated with equivalent doses of x-rays. Thus, from the results it appears that neutrons produce the same lethal effect with one-quarter the x-ray dose. The experiments do not allow us to arrive at any broad conclusions."

The sarcoma group of tumors are held to be equally as malignant and as destructive as the cancer or carcinoma group, but still lack the generic designation, such as cancer. The outcome of the experiment, while indefinite, prompted the statement by its authors that "if further studies on this tumor and other animal tumors bear out present indications, then we have here a new form of radiation which may have important clinical applications."

The experiments were made possible by the support of the Joseph Macy, Jr., Foundation, the Research Corporation, and the Chemical Foundation of America. The findings were submitted to the National Academy of Sciences and published by that organization.

**What They Do.**—Each year, from Thanksgiving to Christmas, Americans from Maine to Hawaii and from Alaska to Florida unite with the people of forty-one other countries in one of the most powerful mass movements against a common foe that the world has ever known—tuberculosis.

Voluntarily they participate in the annual sale of Christmas Seals, those gay holiday stickers on which appears that international symbol of health and hope—the double-barred cross. This year the United States Seals also bear the picture of jovial good health personified, Santa Claus.

Christmas Seals, since 1907 when the first one was sold in Wilmington, Delaware, have raised funds—penny by penny and dollar by dollar—that have helped to build a line of defense that protects all of us.

That the defenses are effective is shown clearly by the fact that the tuberculosis death rate has been forced down from 179 deaths per 100,000 population in 1907 to fifty-four in 1935.

Against the unnecessary toll taken by this communicable, preventable and curable disease, the comparatively small sums of money raised in local communities by voluntary groups have been used in those communities with a definite plan, under the guidance of the National Tuberculosis Association.



These funds have promoted the establishment of agencies of various kinds that have in turn been chiefly instrumental in gradually bringing tuberculosis under control. These lines of defense may be catalogued briefly thus:

1. Twelve hundred institutions—sanatoria for tuberculosis and hospitals having tuberculosis departments—providing 95,000 beds for the treatment and prevention of tuberculosis, chiefly for adults.

2. Ten thousand public health nurses engaged in tuberculosis work.

3. One thousand clinics for diagnosing and finding tuberculosis.

4. More than 1,200 preventoria, summer camps, open-air schools and similar institutions for the care and treatment of children with various forms of tuberculosis or for those who have been in contact with tuberculosis, or who are subnormal physically.

5. One thousand nine hundred and eighty-one tuberculosis associations, including a state-wide organization in every state and local agencies in all of the larger population centers.

But the building of our national defense against tuberculosis is not completed. The disease still takes the lives of about 70,000 persons annually in the United States. Tuberculosis, although ranking seventh as a cause of death when all ages are considered, is the leading killer of people between 15 and 45. It remains the breaker of homes, the maker of orphans, and a constant threat to the life and happiness of everyone.

**Hotis Test Is New Weapon Against Dairy Cow Disease.**—A new test which promises to be a useful means of detecting mastitis, a troublesome and costly disease of dairy cattle, has been developed by research workers of the United States Department of Agriculture. The new method is known as the "Hotis test," named after its originator, R. P. Hotis of the Bureau of Dairy Industry, who died soon after conducting most of the experimental work.

Although the method has been applied only on a limited basis thus far, Department officials plan to give it practical field tests to determine its adaptability under various conditions, for the diagnosis of mastitis in dairy herds. A simple accurate test for the detection of this disease in its early and latent stages has long been sought.

Mastitis, especially in dairy cows, has been a problem for many years. It is a disease of the milk glands which often results in abnormal milk and changes in the udder tissue in the animals infected. Large numbers of cows have been slaughtered because their udders have been so badly damaged as to make them unfit for milk production.

The trained veterinarian or inspector can often detect this disease by clinical symptoms that are apparent to the eye, or by careful examination with the hands. But there are certain early and latent stages in which the udder may be infected with the causative organisms, and yet a definite diagnosis may be difficult or impossible under usual methods.

A number of laboratory tests have been used to indicate such abnormal milk. Such tests include the direct microscopic examination, leukocyte count, chlorid test, brom-thymol-blue test, catalase test, and bacteriologic culture methods on certain differential media. Usually two or more of these tests have been used together, as one test may show a reaction where others fail.

The new test brought out by the Bureau of Dairy Industry is believed to be more accurate than any other heretofore used. In addition, it is comparatively simple and requires little equipment, thus allowing the handling of a large number of samples at one time.

By the use of this test it appears that incipient or latent infections with the mastitis streptococcus may be quickly detected. This will allow segregation of the infected animals and permit prompt methods to prevent spreading. Infected cows should be milked last, and the milker should rinse his hands in a chlorin solution after milking each cow. If milking machines are used, the teat cups should be rinsed thoroughly with water, then with a chlorin solution, before they are placed on the next animal.

## LETTERS

### Concerning automobile injuries.

WESTWAYS\*

November 2, 1936.

*To the Editor:*—I thank you for sending me the copy of CALIFORNIA AND WESTERN MEDICINE.

I think I need not tell you that none is more aware of the deplorable accident situation in the United States today than the Automobile Club of Southern California. We have studied the problem for many years and have considered it from every possible angle. The point of view that there are entirely too many incompetent drivers operating motor vehicles today is probably the most generally accepted reason for the high casualty rate. How to eliminate these unfits is a problem that, from its practical aspects, is a most difficult one.

The existing law requiring physical examinations has many glaring defects. Were it to be rigidly and impartially enforced it would still fall far short of proving a noteworthy correctional measure. This is because of the fact that it makes no provision for testing the psychological as opposed to the physiological qualifications of the driver. There are many of us who believe that the mentally unfit (temporarily or otherwise) are probably responsible for more accidents than the physically unfit. In the class of the mentally unfit will be found the "repeater," who is the cause of accident after accident. He may be of the emotionally unbalanced type, a victim of delusions or a sufferer from any one of many neurological ailments which prevent rapid reactions in times of emergency. The present law doesn't touch this type of individual, and yet we all know that he is a distinct menace to himself and to his fellow motorists. When we have devised a means for determining those who are congenitally disposed toward accidents and can take them out from behind the wheels of motor vehicles, we shall have gone a long way toward solving the accident problem.

I noted with interest your relative figures as to the geographical accident localities. Without being captious I think the per capita method of rating accidents is hardly fair. We have practically abandoned it, for we feel that gasoline consumption is a more equitable gauge for measuring the relative hazards in various areas. And there is considerable difference between two scales of measurement. On the basis of gasoline consumption, for instance, we find that the national average death rate in 1935 was 22.8 deaths per 10,000,000 gallons of gasoline consumed. The lowest rate prevailed in Rhode Island, where it dropped to 10.2; the highest in Georgia, where it reached 35.4. By this basis of calculation the California figure was 20.9—not an enviable record by any manner of means, but yet somewhat below the national average. Unfortunately we do not have these figures for various cities. It would be interesting to compare them with the per capita death rate.

Again I want to thank you for sending me your publication, which has proven of great interest to me.

Very sincerely yours,

PHIL TOWNSEND HANNA,  
Editor and General Manager.

### Concerning legal jurisdiction of district coroners.

STATE OF CALIFORNIA  
LEGAL DEPARTMENT

San Francisco, October 23, 1936.

Honorable Walter M. Dickie,  
Director of Public Health,  
313 State Building,  
San Francisco.

Dear Sir:—In your communication of September 17, 1936, you state that a seaman died aboard the steamer *S. C. T. Dodd* as it was being untied from a pontoon wharf at Estero Bay, San Luis Obispo County, California.

\* Owned and published monthly by the Automobile Club of Southern California.

According to your statement a physician of that county pronounced the man dead without evidence of external violence.

The boat proceeded to Richmond, and the coroner of Contra Costa County was notified the body of the deceased was aboard the ship. The remains were taken in charge by the coroner and, after inquest, a verdict as follows was returned:

Coronary occlusion, and we further find no censure due the captain of said boat in bringing the body to Richmond dock, owing to the difficulties attendant on removing body to shore at Estero Bay, California.

A death certificate was issued in Contra Costa County, a copy kept in the Richmond Health Office, and the original filed in your Bureau of Vital Statistics in Sacramento.

The remains were taken in charge by the authorized representative of the Sailors' Union in San Francisco and are no longer available for autopsy by the coroner of San Luis Obispo County, if, indeed, it was under the circumstances his duty to conduct an autopsy and issue a certificate of death upon the seaman, who did in fact die in his county.

You state that similar situations frequently occur in San Francisco Bay, where a boat at the exact time of death is in one county, but proceeds to dock in another, and ask the following three questions:

First: Should the certificate filed by the coroner of Contra Costa County be permitted to stand alone on our official record?

Second: Has the coroner of San Luis Obispo County jurisdiction to issue a death certificate from his county? In this connection, I would state that the body is not available for autopsy by such coroner.

Third: Should a certificate of death be issued by the coroner of San Luis Obispo County, and should it be attached to the certificate of death already filed from Contra Costa County. It occurs to me that the answer to this question is extremely important to the State due to the geographical contour of California.

In reply, I would first agree that the geographical contour of California should be considered in reaching a conclusion as to the questions asked by you.

Waters three miles seaward are within the boundaries of this State (*Ocean Industries vs. Superior Court*, 200 Cal. 235). A death might occur at many points within this limit where it would be impossible to land a vessel and permit a body to be taken to the county seat of the county in which the man actually died, nor would the law demand that a vessel postpone a voyage for the purpose of permitting a local autopsy.

In the matter under consideration it definitely appears that though a physician of San Luis Obispo County was able to board the ship at the pontoon wharf at Estero Bay, there were difficulties attendant upon removing the body to shore.

Under such circumstances we conclude it was the duty of the coroner of Contra Costa County to take possession of the deceased's body within the purview of Section 5 of the Vital Statistics Act, Chapter 378, Statutes of California, 1915. Certainly, as far as he was concerned the death occurred in this State and the body was found in his county.

The matter is somewhat akin to that discussed in *Huntly vs. Zurich etc. Co.*, 100 Cal. App. 201, at 214, where the Court said:

The evidence offered by plaintiff shows that no inquest was held in Los Angeles County. The performance of an autopsy was not the holding of an inquest. It also shows that upon the arrival of the body in San Francisco plaintiff was dissatisfied with the findings of the autopsy surgeon in Los Angeles; that she represented that her husband's death was sudden; that he had had a "terrible fall." She further expressed the idea that his death had been occasioned by violence of some sort and was not the result of natural causes. Under the circumstances, the body being within the city and county of San Francisco, and within the jurisdiction of the defendant, Leland, and he having been informed that no inquest had been held in the county of Los Angeles, and there being a question as to the cause of death as expressed by the plaintiff, the coroner acted within his authority in ordering an inquest held, and in authorizing his autopsy surgeon to proceed in the usual manner.

The decision of the question as to whether an inquest is necessary rests in the sound discretion of the coroner, and

there is nothing in the record to counteract the presumption that he regularly performed his duty as coroner. . . .

Your first question is answered in the affirmative and your second and third in the negative.

The law does not demand the impossible. As the coroner of San Luis Obispo County did not have possession of the body and could not get the same, it was properly examined and disposed of in Contra Costa County. The coroner of the first-named county cannot possibly add further to the information already on file in the Bureau of Vital Statistics.

Very truly yours,

U. S. WEBB, *Attorney-General*.

By LIONEL BROWNE, *Deputy*.

## SPECIAL ARTICLES

### MEDICAL JURISPRUDENCE\*

By HARTLEY F. PEART, ESQ.

San Francisco

*Malpractice Liability of Physicians Employed in State, County, or Other Publicly Owned Hospitals: Absence of Liability of State, County, or Other Governmental Agency.*

On November, 4, 1936, the Attorney-General of the State of California rendered the following significant opinion to Colonel Nelson M. Holderman, Commandant of the Veterans' Home of California:

Dear Sir:—I have before me your communication under date of October 20, 1936, which is as follows:

"I have been instructed by the Board of Directors of the Veterans' Home of California to direct you a communication requesting an opinion as to whether or not any suit of malpractice or damages could be brought against our surgeon or assistant surgeons by any dissatisfied member of the Home."

I am aware of no reason why a surgeon or assistant surgeon at the Veterans' Home of California should not be subject to suit for malpractice or damages by a dissatisfied member of the Home, or by any other person.

Whether or not a judgment could be secured against such surgeon or assistant surgeon in any such action would, of course, depend upon the facts in the particular case.

Assuming that the basis of the inquiry which you present upon behalf of the Board of Directors of the Home is for the purpose of ascertaining whether or not there is any exemption from suit extended to such surgeon or assistant surgeon, your question should be answered in the negative.

The Attorney-General's opinion suggests the important question: What is the liability of a physician employed in a county hospital, state hospital, asylum or home, or in a municipally owned hospital for negligence (i. e., malpractice)? It also raises another question: If a physician employed in a state, county or municipally owned hospital is negligent in his treatment of a patient therein, is the governmental agency that owns the hospital liable to a civil action for damages brought by the patient?

The Attorney-General's opinion reaches the conclusion that a physician employed in a state-owned institution is legally responsible for malpractice with respect to any patient therein to whom he may negligently render professional services. In other words, a physician employed by a governmental agency to render professional services to patients furnished by the governmental agency is just as liable to be sued for malpractice as a physician who is engaging in private practice and renders professional services to his own private patients. The Attorney-General's opinion is in accord with the general law on this subject. In Volume 21 of California Jurisprudence at page 908, we find the following statement of the law:

It is elementary that a public officer is liable to respond in damages to one specially injured by his negligence or

\*Editor's Note.—This department of CALIFORNIA AND WESTERN MEDICINE, containing copy submitted by Hartley F. Peart, Esq., has been established by the California Medical Association Council. Each issue will contain excerpts from and syllabi of recent decisions and analyses of legal points and procedures of interest to the profession. These will be compiled by Mr. Hartley F. Peart, General Counsel of the Association.

refusal to perform, or by his negligent performance of an official ministerial duty to the extent of such special injury, regardless of intentions, whether good or bad.

Generally speaking, physicians who render professional services on behalf of the State or a county or municipality are considered to be "public officers." Also, generally speaking, this is so even though the professional services are rendered gratuitously.

One would suppose that since the employee, that is to say, the physician, is liable for malpractice, that his employer, in this case the state or a county or city, would also be liable to respond in damages to the injured patient. Curiously enough, however, in those cases in which the question of the Government's liability has been considered, the courts have held that neither a state, county nor city is liable for the malpractice of a physician employed by such state, county or city. In *Sherbourne v. Yuba County*, 23 Cal. 113, an attempt was made to hold a county liable to one who, while an inmate of a county hospital, suffered injuries from unskillful treatment by the resident physician. It was held, however, that a county is not liable for acts of officers or employees which it appoints in exercise of a portion of the sovereign power of the State by the requirement of a public law simply for the public benefit and from which the county as a corporation derives no pecuniary gain. Again in *Davie v. Regents of the University of California*, 66 Cal. App. 689, it was held that the regents were not liable for the malpractice of an attending physician at the University Infirmary, following the rule of the *Sherbourne* case. The court concluded its opinion with a statement that although it was unfortunate, nevertheless the injured plaintiff must be left to his remedy against the attending physician for malpractice.

There are cases in which it is suggested that the immunity from suit for malpractice of the state, a county or city, would not exist if the injury resulted from an activity upon the part of the governmental agency in a proprietary, as distinguished from a governmental, capacity. However, there are no cases in which it has been held that the operation of a state hospital or institution or county hospital or municipal hospital or clinic is a proprietary function, and it seems very doubtful that such a case will ever occur, inasmuch as the protection of health is within the police powers of all governments and as such is a governmental function.

If the malpractice burden which now is borne by those physicians in governmental employment is to be shared by the state, counties or cities, or is to be shifted from the physicians to their employers, it must be accomplished by legislative action. It is interesting to note that the California Legislature has provided, with respect to county roads and highways, that liability for the negligence of county road workers shall be upon the county. No good reason occurs to the writer why the Legislature should not also provide the same rule for physicians.

## THE BIRTH CONTROL INDUSTRY

An article by Harrison Reeves in the *American Mercury* states:

The fact that one of America's fastest-growing and most prosperous businesses is conducted brazenly in the face of a thousand laws which specifically forbid its existence, is a paradox that is generally overlooked in the public's scramble to acquire some of that selfsame industry's valuable products. It is not so vast, say, as the petroleum business, because we spend more time riding aimlessly about in motor cars than we do stopping to make love; nor can it be compared in total volume of sales with the cosmetics trade with which it is in several ways allied. It is more notorious than some of America's widely advertised commercial combines because it thrives on free, or word-of-mouth, publicity; moreover, it boasts of widespread intellectual approval and millions of satisfied users. Its cash sales run into hundreds of millions of dollars annually, and its potential profits approach the billion-dollar mark. And yet, as noted above, the private sale of birth-control devices is strictly a bootleg business, prohibited everywhere, including Russia, by the most intricate laws ever devised by the legalistic mind of man.

Strangely enough, little progress has been made in securing the repeal of these laws, and it is likely that less and less effort will be expended in coming years. For the

problem can be solved in simpler fashion; and that is by treating the laws as though they did not exist. This is the current procedure in America as well as in the rest of the civilized world, the populace having been sold on the idea that the best way to combat tyranny is, first, to defy it, and then apply force. In the instance of birth control, the force applied is the simple one of large commercial profits. There is a vast amount of money in the business, and it has attracted indubitable talent. These modern entrepreneurs have come to believe, and with reason, that the industry will soon be commonplace and honorable, and that the old taboos will disappear in the same manner as did those once exercised against witches in the puritanical purities of Salem, Massachusetts.

From the strictly industrial point of view, the total dollar volume of the birth-control medication and device business in America now approximates \$300,000,000 a year. Yet this retail total, fancy as it may seem, does not include the profits derived from the sales of condoms (classically mispronounced term in a republic that knows not of Sir Richard Condom of George III's reign) which are estimated by informed rubber manufacturers at \$275,000,000 annually for the 5,000,000 articles manufactured and sold daily. The \$300,000,000 is spent for jellies, chemicals, pessaries, suppositories, caps, rings, and compounded prescriptions from birth-control textbooks. . . .

The trade, to use a euphonious term, is divided between nine large and some two hundred small manufacturers. No one of the nine leading concerns, of course, can boast anything like the gross sales of the leading condom entrepreneur, whose annual report discloses that he makes and sells 144,000 daily at three for one dollar, representing a total of some 50,000,000 articles retailed each year for, say, \$17,000,000. Yet even though he undertakes no advertising or promotional work, his profits are smaller in proportion than those of the jelly manufacturers, and so the scales are kept balanced. . . .

The known, catalogued, and credit-worthy distributing agencies for the trade number about 125,000, comprising the so-called "daily outlet" list of steady customers. These include 64,000 independent drugstores, thirty-five chains of pharmacies with 7,000 shops, 40,000 cosmetic stores and beauty parlors, approximately 150 recognized free clinics for the dissemination of birth-control advice and devices, and several thousand assorted gasoline filling stations, found on every street and highway in the nation. The exact number of these latter dispensaries is still a matter of academic dispute between manufacturers, jobbers, and the oil company executives, who have given the matter deep and restrained study. . . .

## II

There is no considerable difference between the various jellies and chemicals now on the market, organically or in degrees of efficiency, while the mechanical contraptions—condoms excepted—are all precisely the same, usually being manufactured by the large concerns for dozens of owners of trade names. Condoms, however, like tires, vary in strength, according to quality and price. In the statistics given here, such articles as douche bags, syringes, diaphragms, and spermotoxins are eliminated, because the prescription of any one by a physician, or their common-sense use without medical advice, may be dictated by conditions other than birth control proper. In fact, if the first two items named were included in the figures, the totals for the trade would be doubled at least. For it is irrefutably true that birth-control insurance is not bought for nothing.

Of proper consideration, however, is the amount of money which might be saved by more widespread use of birth-control machinery. I refer to the nation's abortion bill. It is estimated by the best-informed actuaries—life insurance experts, hospital authorities, and surgeons at one billion dollars a year. Some say two billion. Prices run from \$35, which is standard in the Manhattan slums where medical competition is unbelievably brisk, to \$1,500 standard for the Gold Coast of Hollywood. The average bourgeois price in New York is \$50 and in the smaller county seats, \$100. This excepts, of course, the unscrupulous surgeons who charge whatever the traffic will bear or whatever the case can be scared into. . . .

There is another actuarial figure, too, which bears great import for insurance men. It is the death rate created by these simple little operations. In the United States, where the art is not nearly so highly developed nor so well taught as in many other countries, there are annually 15,000 known deaths, verified by autopsy. There are probably an even greater number accepted by coroners as due to appendicitis (the appendicitis death rate is notoriously high among women of noncanonical age) in which the appendix may or may not have been taken out along with the fetus, just as a precautionary measure. . . .



### THIRTY YEARS OF CHRISTMAS SEALS

By ELIZABETH COLE

In 1907 the first Christmas Seal sale was launched in Delaware by Miss Emily P. Bissell. She raised \$3,000 to use toward building a hospital for children ill with tuberculosis. Much has been accomplished since then, and here in brief form are several important links in the nationwide chain of tuberculosis control that Christmas Seal funds have helped to build.

The National Tuberculosis Association was founded in 1904 by a group of distinguished tuberculosis specialists and interested laymen. Its aim was to study tuberculosis in all its forms and to disseminate knowledge on its causes, treatment, and prevention. From the first, then, the campaign to fight tuberculosis, at that time the leading cause of death, was educational. To stimulate the public in a desire to secure better health machinery was the object, and in only very few instances have Christmas Seal funds ever been used for relief work.

The sixth International Congress on Tuberculosis was held in Washington, D. C., in 1908. This meeting, at which world-famous scientists were present, gave impetus to the whole tuberculosis movement in our country. During the next ten years, tuberculosis associations were formed in practically every state and there are now 1,981 associations affiliated with the National Tuberculosis Association.

In the belief that better health protection for children would result in better health for all communities as a whole, attention was directed toward the establishment of such media as fresh-air schools, preventoria, and toward encouraging early training in the ways of health. Providence, Rhode Island, opened the first fresh-air school in 1908, and in 1909 the first tuberculosis preventorium was established for New York City children at Farmingdale, New Jersey. Other states followed suit, and today there are 173 institutions with provision for children who need preventorium care.

New York, as early as 1909, passed a state law authorizing the building of county tuberculosis hospitals. In 1913 an act in Washington authorized counties in that state to erect sanatoria for the care of its tuberculous and inspired other neighboring states in the Pacific Northwest to undertake organized tuberculosis work. Today there are almost two hundred county tuberculosis sanatoria, besides more than one thousand other federal, state, city, and privately owned institutions providing special care for tuberculosis patients.

A study of tuberculosis in rural areas made by Wisconsin in 1911 revealed that tuberculosis was as prevalent in the country as in the city. This was an unexpected discovery and awakened other states to the need for searching out tuberculosis in their more isolated districts. Michigan was among them and, following a state-wide survey, was first to use a new type of clinic. It was called the "traveling clinic." The itinerant clinics became popular in other states, and were the means of uncovering many cases of tuberculosis. At permanent tuberculosis dispensaries and clinics patients today not only are treated, but they are taught how to get well. These are functioning to the extent of about one thousand.

At Framingham, Massachusetts, a unique health demonstration was established in 1916 to show that, with the cooperation of physicians and citizens, it was possible to control tuberculosis. At the end of the seven-year demonstration the death rate had dropped to thirty-eight per 100,000 population from 121 during the predemonstration decade. Statistical data of untold value were assembled through this study, and the work carried on in Framingham has resulted in similar demonstrations in other communities.

The study of tuberculosis in industry has been another important link in the chain that Christmas Seals have helped to finance. In an effort to emphasize health as a factor in industry the Chicago Tuberculosis Institute in 1911 started a campaign to detect tuberculosis among industrial workers. Other studies on this subject include one in Vermont among granite cutters, completed in 1921. It was found that certain dusty trades are dangerous, and many measures have now been taken to protect these workers against tuberculosis. A recent contribution has been a study of death rates by occupation, to focus atten-

tion on the trades in which the tuberculosis hazard is greatest.

In order to carry out one of the aims of the National Tuberculosis Association, namely, the study of tuberculosis, in 1920 a Committee on Medical Research was organized. Because it was financially prohibitive to found a special laboratory for tuberculosis research, the committee organized and coordinated work of individuals and groups and enlisted the cooperation of various university laboratories with their highly trained personnel. These men and women are working diligently to add to our knowledge about the disease and hope that some day a specific cure may be discovered.

Social research, too, has been carried on, and the findings of various studies have helped to bring to light the relationship of such factors as age, sex, nationality, and occupation to tuberculosis.

In the spring of 1928 the first Early Diagnosis Campaign was held. This country-wide educational campaign, conducted each spring for nine years, has for its objective the detection of tuberculosis in its early forms. These campaigns have encouraged the use of the tuberculin test and the x-ray among school children, and have been instrumental in finding early cases of tuberculosis when treatment could be given in time to save many lives. In Massachusetts a ten-year program was started in 1924 by the State Department of Health for the detection of tuberculosis among school children, the most extensive project of this kind ever undertaken.

And after recovery—what? That is another problem tuberculosis associations are working on. In New York City, back in 1913, the first workshop for arrested cases of tuberculosis was opened. At the Altro Work Shop, men and women are successfully engaged in garment making. To prepare tuberculosis patients to return to work, many sanatoria conduct classes for study and well-rounded programs of rehabilitation have been worked out in many parts of the country.

Utopia may be a long way off, but Dr. Thomas Parran, Jr., Surgeon-General of the United States, recently said, "Tuberculosis can be wiped out in our nation."

Why not work optimistically toward that goal? In 1907, when the first Christmas Seals were sold, 179 persons out of every 100,000 population were dying from tuberculosis; now less than 60 per 100,000 are dying. Certainly the links in the nation-wide chain of tuberculosis control that have helped to save these lives must not be allowed to weaken. Other links must be added. Let us hope that before the next thirty years have passed, the chain will be so strengthened that the new generation will see Doctor Parran's prophecy come true.

### WHAT IS GOOD TO EAT?\*

By THURMAN B. RICE, M.D.

Who originated the idea that those things you like are bad for you and those things you do not like are just what you need? Appetite surely must have been developed through the ages of evolution as a guide by which the various animals were able to choose their food. It must have served those animals well because otherwise they would have become extinct in the tremendous struggle for existence. Surely, the animals which did not know what was good for them to eat are no longer with us. Surely, the fact that man is here and that he is on the top of the heap is proof enough that his appetite and instincts having to do with food must have been reliable for the most part at least.

Now come a lot of people who would have us believe that these instincts are not at all to be trusted. They would have us eat a great many dishes which we detest simply because these dishes contain certain vitamins, minerals, or proteins. They would have us refrain from foods which we desire most heartily because they say they are too fattening, are lacking in something or other, or possibly are hard to digest. We are willing to grant that times have changed and that there is need that some of the instincts be held in check, but in the main we still insist

\* From the Department of Bacteriology and Public Health, Indiana University School of Medicine.

Printed in Food Facts.



that appetite is the most fundamentally correct of the many methods of choosing food—provided, of course, that the instinct has not been distorted by false teaching, or practices which are definitely injurious.

An example of an instinct or appetite that has needed control recently is the strong desire for sweets which is nearly universal. In a state of nature sugar is not easily procured. It is, however, a most important food ingredient. Children in particular crave sweets because they are quick and rich sources of energy, and children use a lot of energy. The pickaninny in the cane brake twists a stalk of sugar cane and sucks the juice. The lad in the northern states bites off the bottoms of clover blossoms and robs the nest of the bumble-bee—or at least he used to do so before he was so well supplied with sugar at the table. Nature has set her young animals on the search for sugar. They need it and, therefore, crave it. But man has learned to purify sugar and has made it the most concentrated and pure of foods. Likewise, it is among the cheapest of foods from the standpoint of calories per dollar. We import sugar into our cities by the carload, and use it in a thousand ways. Nearly everyone has learned to like the flavor of sugar and in consequence we tend to eat too much of it. Not that the sugar is bad food. It is not. It is excellent food when eaten in the right amount and at such a time that it does not clog the appetite or make other flavors seem pale by comparison. The instinct is quite all right, but the capacity for satisfying the instinct has got out of hand.

In general, we propose as our premise, that appetite as it exists in a normal individual is a reliable guide to the selection of food. Immediately there will be heard protest. What about appetite for alcoholic drinks, for tobacco, for coffee, and other substances which are commonly supposed to be more or less injurious. All of these are cultivated appetites. Children do not like beer, coffee, tobacco and other similar products, but learn to like them because they want to do the things which adults do. My own children regard coffee as being worse to take than medicine. They were curious to taste beer because they had heard that it was so wonderful. One little sip was enough to convince them that they could do very well, as yet, without it.

On the other hand, there are foods which do not rate so high with the food faddists which are most satisfying to a hungry man or boy. When I was a kid on the farm I liked nothing so much as to hear that mother had a big pot of beans for dinner. Beans and bread! It was a meal that would stand by you. It would stick to the ribs when one was working hard. Yet there are those who will point the finger of scorn at beans. "They are hard to digest," it is said, but I never was sick from eating beans in my life. They are not a very good source of protein, but we did not attempt to get along on beans alone. There was always some meat with them, some bread, and milk to drink. Beans practically never can go wrong because of the way they are cooked. Anyway I like them, and it will take a lot of talk to make me think they are anything but one of the best of foods.

We have heard the lowly potato slandered, but again I like them. It is said that they are too starchy, that they are fattening, that they are white, and God only knows what else. The potato has been of vast service to the world and has filled up the big and little hollow places in boys and girls for so these many years. Ask any housewife how she would like to get along without the lowly tuber, and ask any family of kids whether they would miss them or not. If creamy mashed potatoes with a lot of yellow butter is not food for the gods, then I am no connoisseur of the good things of the earth. I have never been made sick by potatoes, never had them served spoiled, never found them hard to digest, and so far as I can see have had no trouble for lack of vitamins.

The protein of corn is not a perfect protein, it is said. I do not care if it is not. I like corn bread, fritters, green corn, hominy, and corn-meal mush. When the family at our house sits down to a meal of corn bread, milk, and butter, we know God is in his Heaven and that all is right with the world. In case I get to worrying about food deficiency at such a time—which I do not—I remember that this country became great on a corn diet. Those hardy pioneers could not always have their spinach and carrots, but they did pretty well. Maybe we ought to imitate them a little more.

My children—and they are sturdy specimens—like bread and jam, bread and butter, bread and syrup. They go for

pie! Horrors! Does a teacher of health eat pie and permit his children to eat pie? Yes, he does and sets them the example. If there is anyone who can explain why a good piece of pie made from delicious fruit is bad food, I should like to have him rise and explain. Parents commonly require their children to eat their vegetables before they can have more bread and jam or pie, and there is a certain reason for doing so. Children really should learn to eat a wide variety of things rather than just those which are tastiest and best. (Shall we say best? I think so.) Consequently, there must be some sort of regulation or there would not be enough dessert to go around, but in the main we insist again that there is probably no better guide to correct diet than the unspoiled instincts and appetite of a healthy child of ten. And does he not have a lot of fun eating when his elders leave him alone?

Yes, there must be parental control at the table, and there must be research in food and food requirements. These efforts serve the purpose of guiding us to the right foods in order that we may be healthy and happy. But parents have been wrong in their ways of rearing children, and distinguished scientists have been wrong in their pronouncements concerning diet. If the instincts and appetites of the human race had been very much wrong, the human race would long since have become extinct. Instead the race is the finest product of all evolution. Draw your own conclusions.

#### GIFT OF ONE HUNDRED THOUSAND DOLLARS: FOR STUDY OF VOLUNTARY INSURANCE PLANS

A gift of \$100,000 to the American Hospital Association for the study and development of voluntary hospital insurance was announced by Edwin R. Embree, president of the Julius Rosenwald Fund, at the annual meeting of the Fund recently held in Chicago. This plan, known as group hospitalization, enables persons of moderate means to secure hospital care by payments of from \$6 to \$12 per year without recourse to charity.

The program of the American Hospital Association will be carried forward through a special Committee on Hospital Service, of which C. Rufus Rorem of Chicago becomes executive director. The chairman of the committee is Dr. Basil C. MacLean of Rochester, New York, and other members are: Dr. R. C. Buerki, Madison, Wisconsin; Dr. S. S. Goldwater, New York City; Monsignor Maurice F. Griffin, Cleveland, Ohio; and Dr. Claude W. Munger, president of the American Hospital Association.

The work of the Committee on Hospital Service includes two phases: First, advice and consultation to existing plans and those being formed concerning actuarial data, benefits, method of organization, public relations, annual subscription rates; second, relations of hospital service plans to the medical profession, public welfare activities, state departments of insurance, private insurance companies, hospital administration, and hospital accounting. This program is a continuation of the activities of the American Hospital Association since 1933.

Doctor Rorem, who is a certified public accountant, was formerly associate professor at the University of Chicago and is the author of a university text in accounting, as well as several volumes dealing with the economic and financial aspects of hospital and medical care. Since 1931 he has been associate director for medical services of the Julius Rosenwald Fund and since 1933 has been consultant in group hospitalization to the American Hospital Association.

Enrollment in group hospitalization plans is now approaching one-half million employed subscribers and dependents, with more than 150,000 participating in the three-cents-a-day plan for hospital care in New York City. Plans which have enrolled more than 25,000 employed persons are those in Rochester, New York; Cleveland, Ohio; Washington, D. C.; Minneapolis and St. Paul, Minnesota, and Dallas, Texas. Other plans with 5,000 or more subscribers and dependents are those in New Orleans, Syracuse, St. Louis, San Antonio, Houston, Memphis, Sacramento, Newark, Charleston and Bluefield, West Virginia, Kingsport, Tennessee, and a state-wide plan for North Carolina. Nonprofit city-wide hospital service plans have been established or are being organized at the present time in Chicago, Buffalo, Albany, Louisville, New Haven, and Boston.

## TWENTY-FIVE YEARS AGO†

### EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IX, No. 12, December, 1911\*

From Some Editorial Notes:

**Salvarsan.**—It is unfortunate that there is such a prevailing opinion that salvarsan has displaced mercury, and that one injection of the new preparation will cure a large percentage of syphilitic infections. It is undoubtedly true that salvarsan may abort early lues, will usually clear up syphilitic eruptions quicker than mercury, works well where the latter drug fails, and is a specific in malignant syphilis. Nevertheless, it is seldom that one injection has the desired effect. . . . —H. M.

**Cancer.**—In spite of recent valuable additions to our knowledge of cancer, the treatment remains virtually the same, radical removal of all surgically accessible growths. There is no present indication of change. So far therapeutic progress has been achieved mainly within the domain of surgery and has consisted of the development of technical methods all having a common end, complete removal. . . . —M. S.

**Specialism.**—An eminent gentleman spoke disparagingly of the modern tendency toward specialization in the healing art. Said he: "The day of the good old family doctor is, or will soon become a thing of the past; now every portion of the body is covered by a specialty, except the umbilicus. And even that," concluded the learned one, "is in imminent peril." . . .

Our contention is that the tendency to specialize was the inevitable result of problems repeating themselves which called for original thought and recurrent experience, and that without it scientific medicine must have been impossible. . . .

**Annual Meeting of the Medical Society, State of California.**—The attention of the members is called to the fact that the annual meeting of the State Society will be held in April, 1912, at Hotel Del Monte. The Committee on Scientific Work is now considering the matter of arranging the program and those desirous of presenting papers are respectfully requested to send their titles as soon as possible to Dr. William Ophüls, Chairman Committee on Scientific Work, Lane Hospital (corner Clay and Sacramento streets), San Francisco. . . .

From an article on "The Significance of Pelvic Pain" by Ray Lyman Wilbur, M.D., San Francisco.

Any physician who deals much with sick women and who has not had his senses somewhat dulled by the constant repetition of the complaints of pain in the pelvis, back, legs and abdomen that daily assail him must be without the normal type of nervous system. Experience has shown him that so many of these pains disappear or are no longer spoken of as soon as health follows anemia, rest follows fatigue, comfort follows worry, happiness follows gloom, or normal peristalsis of the bowel is established, that he unconsciously discounts most of the assertions made to him and often looks upon them merely as hysterical or neurasthenic manifestations. Yet pain, as we all know, is our greatest friend whenever the peritoneum is threatened, and we know what a prominent part in acute illnesses and early deaths the peritoneum plays. Where would modern abdominal surgery be were it not for pain? Its triumphs would be of a very different sort than they are today. . . .

(Continued in Front Advertising Section, Page 18)

†This column strives to mirror the work and aims of colleagues who bore the brunt of Association work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and new members.

\*As stated on page 355 of the September, 1911, issue of the *California State Journal of Medicine*, owing to the illness of its editor, Dr. Philip Mills Jones, the *Journal* would be brought out by the Publication Committee.

## BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA†

By CHARLES B. PINKHAM, M.D.  
Secretary-Treasurer

### Board Proceedings

"Officers of the State Board of Medical Examiners retained their offices here after an election at the annual meeting here. Dr. William R. Molony of Los Angeles president; Dr. Clark L. Abbott of Richmond, vice-president; and Dr. Charles B. Pinkham of San Francisco, secretary-treasurer, are the officers. Doctor Pinkham has held his position for twenty-four years. . . ." (Associated Press dispatch, dated Sacramento, October 21, and printed in the *San Diego Tribune*, October 21, 1936.)

The following changes in status of licentiates were made by the Board of Medical Examiners at the annual meeting held at the State Capitol, Sacramento, October 19 to 22, 1936:

Isaac S. Clark, M.D., Long Beach, narcotics, on October 21, 1936, placed on probation for five years without narcotic privileges or possession.

Hugo W. Foss, M.D., Los Angeles, narcotic violation. Licensed revoked on October 21, 1936.

George W. O'Donnell, M.D., San Francisco, alleged illegal operation. License revoked on October 21, 1936.

Frank J. Parizek, M.D., Los Angeles, narcotics, on October 21, 1936, placed on probation for five years without narcotic privileges or possession.

Lee Edward Smith, M.D., Oakland, violation of probation re narcotics. Licensed revoked on October 21, 1936.

Wade H. Walker, M.D., Long Beach, narcotic violation. Licensed revoked on October 21, 1936.

George H. Wymann, M.D., Los Angeles, penitentiary sentence re abortion. License revoked on October 21, 1936.

The hearings on the following were continued to the next meeting of the Board, to be held in Los Angeles: John E. Cummings, M.D., Los Angeles; Henry L. Gardner, M.D., San Francisco; Oscar Charles Long, M.D., Brawley; Francis W. Steddom, M.D., Los Angeles; George E. Watts, M.D., Los Angeles; Thomas D. Wyatt, M.D., Redding.

The following were dismissed: Quinter O. Gilbert, M.D., Oakland; Samuel A. Twain, M.D., Berkeley.

### News Items

"Hysterics and a fainting spell by a woman witness yesterday threw out of gear the Superior Court trial of fourteen women as alleged operators of a gigantic Pacific Coast illegal operations syndicate. . . . Mrs. Gladys Duckworth of Santa Monica, a former patient of the operation syndicate, was unable to tell her story to the jury because of an emotional outbreak brought on, she explained, by word that she had just been discharged by her employer, a Santa Monica dentist. She said the dentist objected to her agreement to testify in the case and had communicated her discharge by telephone as she waited in an anteroom to the court. . . . A ten-minute recess was ordered and she returned to the anteroom, where she toppled to the floor in a dead faint as her name was called again. . . . When she had been restored to consciousness, Deputy District Attorneys Verne Ferguson of Los Angeles and J. J. McMahon of San Francisco informed her she need not testify at all unless she wished. . . . Meantime her divorced husband, Frederick Duckworth, gave brief testimony, which was to have followed Mrs. Duckworth's as corroboration of her statement that she became critically ill after an operation in 1935 at the alleged Los Angeles Clinic of the organization. . . . Her testimony, Ferguson said, will be similar to that given at yesterday morning's session by Mrs. Dorothy Woods of Long Beach. Both stories, the Prosecutor informed the Court, will substantiate the prosecution claim that leaders of the alleged

(Continued in Front Advertising Section, Page 21)

†The office addresses of the California State Board of Medical Examiners are printed in the roster an advertising page 6.

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